5-2003

Shared Book Reading, Home Visit Processes, and the Relation with Low-Income Infants' Language Development

Katie Christiansen
Utah State University

SHARED BOOK READING, HOME VISIT PROCESSES, AND THE RELATION WITH LOW-INCOME INFANTS' LANGUAGE DEVELOPMENT

by

Katie Christiansen

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Family and Human Development

ABSTRACT

Shared Book Reading, Home Visit Processes, and the Relation

with Low-Income Infants' Language Development

by

Katie Christiansen, Master of Science

Utah State University, 2003

Major Professor: Dr. Lori A. Roggman
Department: Family, Consumer, and Human Development

Language is important for children to succeed in school. Language development begins early in a child's life and can be facilitated by a supportive language environment. Shared book reading is an important aspect of the language environment a child experiences.

This study utilized data from twenty children living in low-income families. These children are part of the Rural Utah Child Development Head Start and receive weekly visits from home visitors. Two home visits were videotaped and coded for parental and home visitor language facilitation behaviors. A parent interview was also completed to obtain participant demographic information and measure child and parent language ability. Relations between parental language facilitation, home visitor language facilitation, and child language ability were examined.

(115 pages)

ACKNOWLEDGMENTS

Furthering my education has been a rewarding and enjoyable experience. There are many people who have contributed to my success as a student. I would like to thank those who encouraged this dream and helped it become a reality.

First, to my major professor, Dr. Lori A. Roggman. Her devotion to her work and to her students has been a great example for me. I thank her for her willingness to share her success with those around her.

I would also like to thank my committee members, Drs. Ann M. B. Austin and Sylvia Niehuis. I have appreciated your efforts to make my experience better. I thank Ann for her enthusiasm for the project and invaluable ideas. I thank Sylvia for her attention to detail, which resulted in a better project.

To my parents for their undying support and belief in my abilities. If all children had parents like you, there would be no need for me to study what I do. Thanks so much for giving me a happy life. To my siblings, I've heard that the longest relationships a person has in life are the relationships with their siblings. How lucky am I! I love you all. To my husband, thank you for allowing my dream to become ours and for encouraging me when I doubted in myself. I love you.

And lastly, to my niece, Savannah Rae. Inevitably, you will grow up and won't stay a child forever, but there will always be children to do as you do – remind all of us of the wonder of childhood. May your smile always be bright.

Katie Christiansen

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CHAPTER I

INTRODUCTION

Language proficiency in childhood is positively related to later academic success (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Dunning, Mason, & Stewart, 1994; National Research Council, 1998). Although other factors also influence academic success, examining the early language development of children is important because it may reveal potential areas for effective interventions to promote later school success. If the early language ability of children is improved, they are likely to be more successful academically later.

The present study addresses toddler language development in relation to parent-child book sharing in low-income families. Language development is a special concern for low-income children who face many obstacles in development. Living in a low socioeconomic status (SES) household is often identified as a risk factor and by two years of age, it is related to differences in children's vocabulary (Olson, Bayles, & Bates, 1986). In the population studied for this research, teachers often recognize language deficits as a concern for children (Roggman, 2000). Helping children in low-income families become skilled communicators is a form of early intervention to promote school readiness.

Language Environments

It is likely that poverty itself does not cause lower language skills, but that a poor language environment often correlates with low SES, and thus it is important to

examine the language environments of these toddlers to understand how the environment can promote desirable language outcomes. There are various reasons for children to have inadequate language and reading skills, but all seem to be remedied by an early language environment that provides good instruction (National Research Council, 1998). In fact, the home environment a child experiences accounts for much of the variation in child language ability (Hart & Risley, 1995). An environment that is conducive to learning language is desirable because children who learn to use language optimally and effectively have been shown to have more success in school and are more socially accepted than children with fewer language skills (Arnold et al., 1994; Crain-Thoreson & Dale, 1992; Hart & Risley, 1995; Steelman, Assel, Smith, Swank, & Landry, 2002; Vallance & Wintre, 1997). It is also easier to manipulate the input children receive from adults than it is to change biological endowments. Thus, the language environment experienced by children and how it can be changed needs to be understood.

Shared Book Reading

Children hear language in multiple contexts, but one major aspect of the language environment that influences a child's success and proficiency with language is parental behavior (Hart & Risley, 1992; Olson et al., 1986). There are identifiable parental behaviors that influence a child's language skills. One such behavior is shared book reading. Research on book reading supports the hypothesis that reading with children can enhance language skills (Arnold et al., 1994; Whitehurst et al., 1988).

Both quantity and quality are important aspects of shared book reading. Quantity increases children's exposure to words and grammar. Quality book reading allows children to share conversations with parents and to verbalize ideas. When examining the link between shared book reading and language development, quantity and quality are two variables often examined to understand the language environment a child experiences.

Many aspects of the language environment may be difficult for interventions to change, but shared book reading between parent and child has been shown to respond well to intervention (Arnold et al., 1994; Valdez-Menchacha & Whitehurst, 1992; Whitehurst et al., 1988). By teaching parents and caregivers the importance of reading to children and by giving them better book reading skills, it becomes more likely that children will be exposed to a richer language environment. This may be especially helpful for low-income families who use less sophisticated language facilitation behaviors without instruction on shared book reading (Ninio, 1980; Whitehurst et al., 1988).

It is possible to teach parents to more effectively facilitate language. Whitehurst et al. (1988) studied 30 middle-class families with children between the ages of 21 and 35 months of age. An experimental group received instruction on how to best facilitate child language during shared book reading. When compared to the control group, post-test language abilities of the experimental group children were 8.5 months more advanced. Nine months later, a 6-month age difference still existed. Interestingly, these differences were obtained with less than one hour of training in effective book

reading strategies. This is an important finding because if parents of low-SES children can be taught more effective language facilitation behaviors, perhaps their children will also show improved language abilities.

The majority of book reading research has focused on children in the preschool years (ages 2-5). Because the impact of the language environment begins earlier than this, it is important for book reading during younger ages to be examined. The period between the ages of 1 and 2 years is important for language development. It is during this time that children usually say their first word, begin combining words, and develop the beginnings of syntax (Brown, 1973; Nice, 1926). The ways in which parents can assist children of this age to develop language skills through book reading are aspects of language development that have not received adequate attention. This study looks at toddlers of low-SES families to identify which parental behaviors are associated with greater language development.

Home Visit Programs

The sample that was identified for participation in the study includes children enrolled in Rural Utah Child Development Early Head Start. This program employs home visitors as the main form of service delivery. Home visitors provide parents with information on many topics related to child development and strive to build relationships with parents and children. In successful relationships, home visitors are able to impact parenting skills by modeling appropriate behavior and providing parents with information, resources, and encouragement to increase their parenting skills.

Home visitors are perhaps the best means of intervention in the area studied. The research was conducted in a rural area where distance prohibits many other forms of community intervention. Using a home visiting program to provide information to low-income families is a logical approach in such areas. Few studies have examined intervention programs in rural areas because of the scarcity of such programs (Roggman, 2000). Studying the impact of home visitors in an area where this is one of few possible interventions will provide a better understanding of the influence a home visiting intervention can have on child development.

Home visitors are integral to this study because of the potential impact they have on the home environment the child experiences. Hart and Risley (1995) addressed the need for a responsive and verbal home environment for young children in order for optimal language development to occur. Examining the ways in which home visitors impact language development is important to better understanding whether home visiting is an effective intervention strategy. Few studies have examined the process of home visiting with the objective of identifying which language facilitation behaviors are most effective at impacting parental language facilitation (Roggman, 2000).

Home visitors can enhance the language skills of children using two basic strategies. One strategy is to use appropriate language facilitation techniques directly with children. This occurs much the same way parents and other adults foster language development in children. The other strategy is to encourage parents to implement effective language facilitation strategies when communicating with their children. One way home visitors can encourage parents to implement effective language facilitation

strategies is by modeling language facilitation behaviors. They can also facilitate conversation between parents and child, which could create indirect and follow through effects on children's vocabulary. It is likely that the second home visitor strategy, encouraging parents to implement effective language facilitation strategies when communicating with their children, will be more effective in enhancing children's language abilities because it will influence the environment the child experiences when the home visitor is not present.

Research Questions

The purpose of this study was to explore parent language facilitation of young children and the ways in which home visitors can best facilitate this process. Several research questions were examined.

1. Does parents' use of certain language facilitation techniques correlate with greater child vocabulary?
    a. Do parent language facilitation techniques combined across both contexts correlate with child vocabulary?
    b. Do parent language facilitation techniques during shared book reading correlate with child vocabulary?
    c. Do parent language facilitation techniques during other home visit activities correlate with child vocabulary?
2. Are parent language facilitation techniques related to other parent characteristics?

a. Do parent language facilitation techniques correlate with parent education, vocabulary, and age?

b. Do parent language facilitation techniques correlate with family size, SES, and ethnicity?

c. Do parent language facilitation techniques and other parent characteristics combine to predict child vocabulary?

3. Does home visitors' use of certain techniques correlate with parent behavior and child vocabulary?

a. Does home visitors' use of certain language facilitation techniques correlate with child vocabulary (direct effect)?

b. Does home visitors' use of certain language facilitation techniques correlate with certain parent language facilitation techniques (modeling effect)?

c. Does home visitors' use of conversation facilitation techniques correlate with child vocabulary (follow through effect)?

d. Does home visitors' use of conversation facilitation techniques correlate with parent language facilitation (indirect effect)?

CHAPTER II

REVIEW OF THE LITERATURE

This chapter provides a theoretical framework for the research and reviews literature relevant to the study. It first provides a general overview of language development theories followed by a description of the theoretical framework used in this study. The last four sections review the empirical literature on parental responsiveness, shared book reading, language facilitation behaviors, and home visiting intervention programs.

Language Development Theories

Language development is a complex and critical aspect of child development. The process of language development begins early in infancy. Infants begin verbal communication by babbling and later repeating sounds of their native language. By the age of one year, many infants are saying their first real words (Huttenlocher, Haight, Bryk, Seltzer, & Lyons, 1991). An explosion of language usually takes place in the second year of a child's life, and by two years of age, many children are meaningfully combining words into short functional sentences (Huttenlocher et al.; Nice, 1926).

The way in which children learn a language has been a source of debate throughout the history of study in child development. An early view of language development that was prominent during the middle part of this century was behaviorism (Skinner, 1957). There are variations in how behaviorists proposed language development occurs, but central to this view is a belief in learning. As children are

exposed to language, verbal responses are reinforced and shaped, and children become effective communicators.

Behaviorist Perspective of Language Development

B.F. Skinner was among the behaviorists who touted learning as the road to communication. Skinner (1957) defined verbal behavior as "behavior reinforced through the mediation of other persons" (p. 14). He did not limit his definition of verbal behavior to vocalizations only. In this definition, he included all movements having the potential to affect others; however, he saw vocalizations as the predominant form of verbal behavior.

Skinner believed that a child acquires language through operant conditioning. Through this process, seemingly unpatterned sounds are reinforced and assume forms common to the verbal community when they produce appropriate consequences in the environment (Skinner, 1957). For example, a baby babbling the sounds do-di-do-da-do-da-di would be reinforced when an excited father proclaimed "that's right- daddy!" The baby would then repeat the combination da-di as it produced a desirable response in caregivers.

To Skinner, there were several contributions to the strength of the operant conditioning. They include the emission, energy, speed, and repetition of a response (Skinner, 1957). He considered a response to a vocalization that is prompt and emphatically exclaimed a stronger operant than a delayed and halfhearted response.

Other behaviorists, drawing on the idea of language as a learned behavior, saw

imitation as the main learning tool required for language acquisition. Infants and children imitate and repeat the words that communicators say. This process results in a rapid increase in linguistic skills once children have obtained the biological maturity to communicate. Caregivers participate in this process by providing children with words to imitate. However, the behaviorist view is unable to account for the unique words and phrases young children often express. When a child says "cold it" as a request for parents to cool their food or "I goed outside" to describe a past action, the child is showing skills that cannot be explained by learning alone.

Nativist Perspective of Language Development

In contrast to behaviorists, who viewed language acquisition as a learned skill, Chomsky and other nativists saw it as an innate ability. Chomsky believed the process of language development was one in which children have the foundations of language already within them. Exposure to a particular language determines which words and grammar forms will be used. Chomsky (1968) believed that a child's language was created within the language system to which they were exposed. This is accomplished through a language acquisition device (LAD), an innate capacity to learn language (Chomsky, 1957).

Chomsky (1968) made three observations that support the creative aspect of language acquisition: (a) the use of language is innovative and not imitative; (b) language use is free from control from stimuli that leads to thought and self-expression; and (c) language use is coherent and appropriate to the situation in which it is used.

Also cited as evidence for this viewpoint are the universal forms of grammar used by infants and children learning to speak. Even while still learning a language, children follow rules of grammar and are able to generalize grammar rules to novel phrases and words (saying words like "goed" instead of "went" or "taked" for "took"). If a child simply repeated something he/she had been taught, these novel word and phrase productions would not exist.

The nativist perspective maintains that there are specific areas within the brain that are responsible for language. Research has shown that language learning seems to occur in two main areas within the brain--Broca's area is responsible for language production and Wenicke's area controls the interpretation of language (Siegel, 1999). These findings support the idea that children have innate language abilities. However, although it is now widely accepted that there is a biological predisposition to language learning, a nativist perspective alone cannot explain language development. Researchers have been unable to find a universal grammar structure underlying languages (Marastos, 1998).

Interactionist Perspective of Language Development

Currently, the general opinion lies somewhere between behaviorist and nativist perspectives. Views that accept the importance of both learning and innate capabilities are known as interactionist perspectives. According to interactionist perspectives, language acquisition is viewed as a process in which children learn the language through the assistance of others. They are not simply taught the process--there appear

to be characteristics of children that contribute to the process. A common aspect of all interactionist perspectives is an emphasis on the social context. The context, or environment, that a child experiences is an important contribution to the development of language.

Barring a disability or an environment deprived of language, a child will learn to speak. Learning to speak seems to be an almost universal process. If this is true, why are experts on child development concerned about the process and interested in learning how language development can be improved? Research has shown that there are things parents and other people can do to facilitate children in this task. The home environment a child experiences accounts for much of the variation in child language ability (Hart & Risley, 1995). An environment that is conducive to learning language is desirable because children who learn to use language optimally and effectively have been shown to have more success in school and are more socially accepted than children with fewer language skills (Arnold et al., 1994; Crain-Thoreson & Dale, 1992; Hart & Risley; Steelman et al., 2002; Vallance & Wintre, 1997).

Contextual Theoretical Perspective

The theoretical approach used to guide this research is Vygotsky's theory of cognitive and language development. Vygotsky recognized that speech was connected with thought and that the primary purposes of speech were communication and the formation of social relationships (Vygotsky, 1962). Vygotsky (1978) theorized that speech arises as a means of communication and later organizes thought processes.

Speech first occurs interpersonally and progresses to an intrapersonal process that drives human thought. Vygotsky (1978) feels that children begin by using interpersonal speech as a means of problem solving. Children use speech to describe a problem to someone who can help them solve the problem. By using this interpersonal process, children become capable of using speech to guide and organize their own behavior. This has important implications for the child's ability to succeed in school. The connection of speech with both thought (academic success), and communication (social success) are important aspects of child development that emerge in the context of interpersonal relationships.

Before a child's experience can be shared, the child must be able to simplify the experience and find symbols to represent it (Vygotsky, 1962). This process is facilitated by an adult who can provide words to help the child understand the experience. Language development will proceed most efficiently when an adult facilitates language for children, as it will allow what begins as a process between two people to become a child's individual skill when effective facilitation has been provided to help the child internalize dialogue.

Vygotsky refers to a "zone of proximal development" (ZPD; Rieber, 1998, p. 201). This zone represents behavior and learning the child is not capable of independently, but with the assistance of an adult, the child is able to complete the behavior or learn the task. Vygotsky believed that independent abilities were insufficient for judging the child's mind (Rieber). Helping children within their zone of capable behavior increases their abilities in that area. Adults can facilitate language

development by helping children find words for things they would not be able to verbalize on their own.

One important way of facilitating this behavior is "scaffolding." This technique refers to the ways in which adults are able to help children do things the children are unable to do alone. When scaffolding, parents build on the skills children already possess. To scaffold a child's language development, a parent may use words a little longer than words the child uses or elaborate on what the child says. For example, if a child says "doggie," the parent may elaborate on this by saying "yes, there is a big doggie." This will help the child move from one-word utterances to more complex language abilities. Indeed, research has shown that, "progressive change in adult standards is thought to be important for encouraging progression in the child's language skills" (Arnold et al., 1994, p. 236). As parents' expectations for language increase, they can build on their child's language to produce more complex language.

Shared book reading and the conversational give and take that occur in the context of shared book reading are important opportunities for parents to scaffold children's language in the zone of proximal development. Shared book reading can provide children with an opportunity to express thoughts and learn about social interaction, and thereby effectively contribute to early language development.

Parental Responsiveness

For parents to effectively work within the ZPD, they need to be responsive to the developmental stage and discrete behaviors of their baby. Responsiveness is a term

used to qualify the ways in which caregivers respond appropriately and promptly to the cues of the child. Being responsive to the development and behaviors of children is beneficial for several areas of child development. As caregivers are attuned and attentive to the needs of their child and respond appropriately to these needs, they encourage a sense of trust in children. This contributes to the development of a secure attachment relationship with caregivers. Being responsive to children and their attempts at communicating has also been correlated with increased language ability in children (Baumwell, Tamis-LeMonda, & Bornstein, 1997; Hoff-Ginsberg, 1991; Landry, Smith, Miller-Loncar, & Swank, 1997; Steelman et al., 2002).

Responsiveness is valuable when helping children learn how to use language. Hart and Risley (1995) wrote that "parent responses that reflect active listening and sensitivity to children's interests and knowledge, especially parent responses to children's overtures, may be most important to helping children learn words and meanings" (p. 108). When parents are responsive to the child's communicative attempts, learning can occur within the ZPD.

Differences have been found by SES with respect to the level of responsiveness the parent gives to the child. Ninio (1980) noted that the teaching style low-SES mothers used during shared book reading was not sensitive to changes in the child's development and was not geared toward helping the future progress of the child's language. Such strategies do not use the effectiveness of the ZPD. Ninio (1980) concluded that such a style is inadequate for language progression.

Being responsive to children's attempts at communicating includes several

things. At young ages, the trademark sign of responsiveness to communication attempts is joint attention, or when parents and children engage their focus on the same object or activity. This often leads to labeling interesting things for the child, which helps the vocabulary of children grow (Morales et al., 2000).

As children age, responsiveness is seen when parents repeat sounds and words children make. In addition, they elaborate on words and sentences children utter, a form of scaffolding. Elaborations are often rephrased as questions, prompting more language from children. For example, if a child says "drink," and the parent responds with "do you want a drink?" the meaning of the child's utterance becomes more complex and children are prompted to use more language. These repetitions and elaborations can clarify and add complexity to children's utterances. Repetitions and elaborations are effective in facilitating the language of children because they occur in the ZPD. The assistance parents give to children's language increases the quality above what children are capable of producing on their own, an effective way of helping children learn to use language (Hoff-Ginsberg, 1986; Wheeler, 1983).

Hart and Risley (1995) noted another benefit of repeating words children use. Repeating the child's words gives interactions positive affect. Positive affect can contribute to the language environment the child experiences and can have important implications for social interactions. Positive affect interactions contribute to social interactions that are successful, while negative affect interactions are damaging to the social relationships of children. Hart and Risley further noted that the typical affect of interactions varies by social class.

Children in lower SES families experience more negative affect. Hart and Risley (1995) found that feedback given to children between the ages of 13 and 18 months living in homes receiving welfare showed negative affect 80% of the time. In contrast, children living in professional families received feedback that was affirmative and positive 80% of the time. This contributes to the perpetuation of social class differences in language ability and social relationships.

Repetition of children's words leads to a sense of pride and accomplishment and may encourage children to take more risks with language. Hart and Risley (1995) found that "to children trying out their first words, parent imitation appeared to be truly the highest form of compliment, a signal that the parent was listening and in enthusiastic agreement that the child had said a meaningful word in the adult's language" (p. 109). Receiving such a compliment may give children a desire to continue learning and experimenting with language.

Responsiveness to children's attempts at using language is likely to occur during shared book reading. Ninio (1980) noted that book reading provides a context that is conducive to learning language. Part of this is because the parent's attention is focused more exclusively on the child than it is during many other daily routines.

During shared book reading, the language facilitation of low-SES parents more closely matches that of higher SES parents than at other times (Hoff-Ginsberg, 1991), yet Arnold et al. (1994) noted that there are still consistent differences concerning the extent of contingent responses to children's language. Differences include a decreased likelihood of labeling objects and events of interest to children, beginning questions

using "where" and "what," and failing to adjust their language to the changing abilities of their children. These are differences that can be manipulated through intervention. Using various methods of intervention (e.g., videotaped instructions, training sessions), researchers have shown that caregivers can be taught to use more effective language facilitation techniques during book reading (Arnold et al., 1994; Valdez-Menchaca & Whitehurst, 1992).

Shared Book Reading

Shared book reading, or time parents spend reading and sharing books with their children, is a behavior of particular interest to this study. Book reading with children is correlated with increases in the language abilities of children (Arnold et al., 1994). Although this connection has been well-documented, there are areas within the literature that need further examination to fully understand the relation between book reading and language ability.

Book reading is a frequent shared activity for parents with children in the age range (1- and 2-year-olds) we studied, yet most of the research on book reading has been conducted with three and four-year-old children (Arnold et al., 1994; DeLoache & DeMendoza, 1987; Whitehurst et al., 1988). Because shared book reading is prevalent at younger ages, it needs to be examined at these ages. This research aims to determine whether the same behaviors that correlate with increases in language development at older ages also correlate at younger ages. If they do, intervening with parents and teaching them language facilitation techniques while their children are experiencing a

language explosion will likely benefit the children's language development.

Research examining shared book reading behaviors and language development in pre-school children has shown a positive correlation. Children whose parents use effective language facilitation behaviors tend to have greater language ability than other children (Arnold et al., 1994; Whitehurst et al., 1988, 1994. Little research has examined book reading and language ability at younger ages, but DeLoache and DeMendoza (1987) note that there does seem to be a correlation even at very young ages. It is important to explore this relationship because of the importance of the first two years of life in language development.

Language Facilitation Behaviors

The following paragraphs will describe some of the language facilitation techniques that have been found to correlate with greater language ability in children and address some of the reasons shared book reading is likely to impact language development. First, general characteristics of such techniques will be described. Next, findings about specific techniques will be reviewed. Differences between social classes in the use of these techniques will be noted. Finally, the benefits of shared reading on language development will be discussed.

Book reading, especially at young ages, provides children with opportunities to imitate words. Parents often label an object or action and children can then imitate the words. This elicits words from children and acts as a form of scaffolding. Ninio (1980) proposes that imitation requests are made "on the threshold of mastery" (p. 450),

allowing children to reach higher levels of verbal ability than they would be capable of otherwise.

Asking questions is an important part of assisting language acquisition during shared book reading. Questions are often divided into categories according to how they are answered (Ninio, 1980; Wheeler, 1983; Whitehurst et al., 1988). "What" questions ("What color is the dog") require children to answer verbally. "Where" questions ("Where is the dog") can often be answered by children pointing, a much simpler behavior.

Ninio (1980) looked at book reading differences between high and low-SES families in Israel and noted an interesting finding. Parents of high-SES children tended to begin language cycles with "what" questions more often than parents of low-SES children (48% of the time compared to 35.7% of the time in low-SES families; $p < .05$). In addition, low-SES parents more frequently began cycles with "where" questions (15.5% of the time compared to 6.7% of the time in high-SES families; $p < .05$).

This difference potentially creates more opportunities for high-SES children to verbalize, and indeed, the research showed that the difference in the productive vocabulary of the children was statistically significant. Low-SES children produced only 36.5% of the words they said (other words were imitated). In comparison, high-SES children produced almost twice as many words (75%). Ninio (1980) concluded that the teaching styles of low-SES families were inadequate for progression in language ability because they did not elicit more advanced language behavior from the child.

As noted previously, imitation provides children with opportunities to verbalize, but for language to progress, they must be challenged beyond imitating others' words. Imitation is appropriate when children are very young, but responsive caregivers will note changes in the abilities of their children and encourage them to use words on their own (Hoff-Ginsberg, 1986; Wheeler, 1983).

Reading to children is not only beneficial because it provides them with an opportunity to use words, but also because it exposes them to reading and the process of reading. They learn important things during this time that will be advantageous for the development of literacy. This exposure to early reading may be a crucial link for later literacy skills and reading development (Newland, 2001). Exposing children to books and reading is important by preparing children to read by exposing them to phonics, helping them learn the structure of books, and instilling in them the importance of reading. Crain-Thoreson and Dale (1992) longitudinally examined the stability of language ability and note that verbal precocity itself is not predictive of literacy, but book behavior is. This finding emphasizes the need for children to be exposed to books at young ages. They also note that "the breadth of knowledge that can be gleaned from children's books helps to explain why story reading with parents might facilitate language as well as literacy development" (p. 422).

The link between early language ability and literacy is well documented. Scarborough (1990) studied children with dyslexia and noted that although dyslexia cannot be diagnosed until children are learning to read, children diagnosed with dyslexia often showed poor language skills before this time. This finding "confirms

prior finding that weakness in language skill is a precursor to reading disability" (p. 1737). It should further be noted that the main area of language ability showing an early deficiency was phonological awareness, a skill that is benefited by book reading.

Home Visiting Intervention Programs

Home visiting programs can provide intervention that is aimed at helping parents facilitate their child's development. This section will first provide a framework from which to view the process of home visiting programs. A brief review of the history of home visiting programs and evaluations of programs will then be provided. The section will conclude with the importance of home visitors to this particular project.

Bronfenbrenner's (1992) ecological approach to development recognizes that development occurs within several environmental contexts. According to this view, there are four main levels in which development occurs. They are the microsystem, mesosystem, exosystem, and macrosystem (Bronfenbrenner). The microsystem is the part of the environment that immediately surrounds the individual and consists of the people and institutions the person frequently interacts with. When children are young, they interact primarily with their family and other caregivers. Strengthening families and giving them tools to promote healthy development is the goal of many home visiting programs. Behind this goal is a belief that strengthening the system with the most direct impact on a young child's development will be an effective form of early intervention for many families. Focusing on children who are at-risk for healthy development is an approach often used by intervention programs. Bronfenbrenner

noted the logic behind this--outside influences (influences not originating within the individual or family) have a greater impact on families deprived of resources.

The use of home visitors as a means of providing intervention for families is not a new practice. Forerunners of today's social workers were often nurses or others who made visits to family homes and provided families with assistance in meeting their needs. This practice has continued in various forms and is used extensively by social service agencies today. Preliminary evaluations of home visiting programs touted positive child outcomes and as a result, the early 1990's saw an explosion of home visiting programs (Thompson, Kropenske, Heinicke, Gomby, & Halfon, 2001).

Although home visitors are widely used, there has been some concern about the effectiveness of using home visitors as an intervention strategy. Several attempts have been made to review the effectiveness of various home-visiting programs and will be discussed below.

In their review of home visiting programs, Gomby, Culross, and Behrman (1999) noted that one difficulty in the evaluation of home visiting programs is determining to what extent the program was implemented as it was designed. If a program is not implemented as it was designed, the benefits that are theorized are not as likely to be seen in child outcomes. It is important for programs using home visitors to examine the integrity of intervention implementation.

Gomby et al. (1999) further noted that one obstacle to home visiting program success is the lack of knowledge about which type of programs are most effective. Home visiting programs exist in a myriad of forms, and what is effective in a particular

area may be ineffective in another area. It is important for programs to find techniques that are effective for the population they serve.

Wasik and Bryant (2001) noted several techniques that are effective for low-SES families. The techniques include asking questions (especially open-ended questions), listening, modeling, and role playing. Shared book reading is a time during which home visitors can use these skills to augment parental facilitation techniques.

The conclusions in these reviews are mixed, highlighting the need to better understand how home visiting programs function and which factors determine their effectiveness. Although the reviews of home visiting programs do not show definite beneficial patterns, home visiting programs should not be abandoned. One problem with evaluating the effectiveness of home visiting programs is isolating the effects from other aspects of service delivery families are receiving (Thompson et al., 2001). Home visits are usually not the only form of intervention a program uses to promote healthy development, and it is hard to know where the impact is coming from.

Home visitors are not the exclusive form of intervention used by the program in this study, but they are integral to service delivery. Persons qualifying for services are scattered throughout a large geographic area. Home visitors are an important means of providing services in this area. It is important to examine their effectiveness in providing intervention to families. This supports efforts to improve the overall program effectiveness.

Across the many home visiting programs that exist, those that are most effective promote strengths and encourage growth within the family they work with. The role of

the home visitor is to facilitate child language by helping parents learn effective facilitation strategies. This enhances the language environment a child is exposed to on a daily basis, not only when the home visitor is present. The present study will examine whether home visitors' use of effective facilitation strategies is correlated with parents' use of effective facilitation strategies. Home visitors try to help parents within their ZPD. Parents are capable of using effective strategies when they know what they are and have seen appropriate ways to use them. Home visitors can help parents become more effective facilitators of their child's language when they assist parents in learning and using these strategies.

Summary

To summarize, the development of language requires social interaction. Children need exposure to language for their developmental capabilities to be realized. Vygotsky's views of language development provide an ideal theoretical framework for studying the importance of the environmental context in language development. Parents who are responsive to the developmental state of their child can provide language facilitation using the ZPD. Responsive parents are able to elicit verbal behavior in children that is more advanced than a child's current capabilities.

Shared book reading provides an opportunity for caregivers to use the zone of proximal development to facilitate the language of their children. This is especially important in low-SES families because children from low-SES families are at risk for language delays, which correlate with later academic and social problems. Some

language facilitation techniques are more effective than others in evoking language from children. Home visitors are in an ideal position to help caregivers learn these skills and use them appropriately.

The ways in which parents facilitate children's language development, and the ways in which home visitors model and teach parents effective facilitation behaviors, occur within the ZPD. Facilitation that is responsive to either parents' or children's' ZPD will most effectively help language develop.

The present study seeks to expand current literature on shared book reading and language development by looking at children younger than those typically examined. It contributes to relevant literature by exploring the relations between parental facilitation during shared book reading and children's language ability, as well as the influence of home visitors on parental language facilitation techniques. As a result of this research, future studies will have a better understanding of how reading to young children impacts language development and how parents and home visitors can help make this process more effective.

CHAPTER III

METHODS

Design

The research design used for this study was correlational. Two videotaped observations were obtained from families receiving home visits from an Early Head Start (EHS) program. This study was part of a larger study that provided training and feed back about the first home visit videotape to home visitors. Program home visitors also met with research staff to receive information about the study and procedures. Interviews were conducted with parents to obtain demographic information and measures of child and parent language. Further information about the sample, procedures, measures, and data analysis plans will be provided in the following sections.

Subjects

Sample Description

Participants for this study were chosen from the Rural Utah Child Development EHS based in Wellington, Utah. This program serves 60 families in Carbon, Grand, and San Juan County, all located in southeastern Utah (Roggman, 2000). This is a rural area where there are few available services for families. Census statistics indicate that there are more children living below the poverty line in each of these counties than in other areas of Utah (United States Census Bureau, n.d.). The average income of

families is also lower than the state average in each of the counties. As low-SES is often a risk factor for language development (Hockenberger, Goldstein, & Haas, 1999; Olson et al., 1986), these statistics indicate that this is an area where many children are likely to be at-risk for poor language development. Other demographic information about the participating counties is given in Table 1.

This convenience, nonprobability sample was selected using two specific criteria. The first was for children in the sample to be from low-income families, a criterion met by all families qualifying for EHS services. The second criterion was for children to be younger than samples used in similar studies. This is why only children whose birthdates fell within the specified time period (August 1998-January 2000) were included in the study. Twenty-six children were born within this time period; however only 21 families were contacted to participate. The remaining families were not contacted because either they were no longer involved in the EHS program or staff

Table 1

Description of Counties and the State of Utah

Demographics	Carbon	Grand	San Juan	Utah
Population	20,422	8,485	14,413	2,223,169
% under age 5	7.2	7.0	9.7	9.4
% White	91.1	92.6	40.8	89.2
% Native American	1.1	3.9	55.7	1.3
Persons per household	2.7	2.4	3.5	3.1
Median income	$35,526	$28,882	$26,723	$38,884
% children under 5 below poverty line	20.4	26.0	32.0	12.5
Growth rate	-3.5	1.7	-4.0	
Persons per square mile	13.8	2.3	1.8	27.2

changes occurred that prevented their inclusion. Of the 21 families contacted to participate, 20 participated in the research study for at least one time point. Only one family contacted declined to participate initially, and one family declined after the first data collection point. Of the 20 families that participated, 5 were Native American, 8 were Caucasian, and 7 were biracial (either Native American/Caucasian or Hispanic/Caucasian). In one family, the father was the participant parent; mothers were the participant parents for other families. Other participant demographic information is given in Table 2.

Home Visiting Program Description

As discussed in Chapter II, home visiting programs exist in a variety of formats. The home visitors in this program have some training in child development prior to being hired and receive training in both child development related issues and effective intervention strategies on a bimonthly basis once employed. Each family involved in

Table 2

Description of Sample Characteristics

Demographics	*n*	Min	Max	Mean	*SD*
Income	17	$5,000	$40,000	$19,200	$10,463
Age of mother	17	20	38	27.42	4.35
Age of father	14	23	44	31.43	7.62
Persons in household	17	3	8	5.00	1.62
Number of siblings	17	0	5	1.82	1.43
Years of education – mother	17	9	16	12.56	1.92
Years of education – father	13	12	14	12.38	.65

the program is assigned a home visitor who makes a weekly visit to the family. This puts the home visitor in an ideal position to facilitate parents in promoting healthy child development. This program employed six different home visitors. Of these home visitors, four were Caucasian, one was Native American, and one was African American. Home visitor ethnicity was not matched with family ethnicity. All home visitors employed by this program were female.

Procedure

Families identified as possible participants were contacted by home visitors who explained the project and asked if they would like to participate. Families were told that they would need to agree to have two home visits videotaped and to complete one phone interview. If families agreed to participate, a consent form was signed (see Appendix A). Families were given $10 for each of three data collection points completed, for a total of up to $30 per participating family.

Data were collected from participants at three different time points. The first time point consisted of a videotaped home visit and was completed by 18 families. Children were between the ages of 11 and 29 months at this time point. The second time point consisted of another home visit videotaped between 3 and 5 months after the first visit and was completed by 17 families. This second videotaped session also contained a segment of shared book reading between parent and child that allowed us to observe parents' behavior within this context. Children were between the ages of 15 and 33 months at this time point. The last data collection time point consisted of phone

interviews conducted with 17 families (see Appendix B). Children were between the ages of 17 and 35 months at this time point. During the phone interview, parents responded to questions about family demographics and routines. This gave information for many of the control variables used in the statistical analyses. Parents also completed measures giving information about their child's language ability and their own language ability. These measures and coding schemes are all detailed in the next section.

Measures

Interview measures were used to assess parental and child language ability and to obtain participant demographic information. Language facilitation behaviors were assessed by coding videotaped interactions using a scheme that categorized behaviors of parents and home visitors separately. Home visitor facilitation of parent-child conversation was also given an overall Likert-type rating.

Language facilitation behaviors. Data on the techniques participant parents and their home visitors used to assist child language during home visits in general and during shared book reading in particular were obtained by coding videotaped observations. Parental and home visitor language assistance techniques were coded separately using the same scale. To code the videotapes, a scheme designed by Whitehurst et al. (1988) for a similar study was employed.

The original coding scheme contained 14 possible adult behavior categories. One category, *other*, was not used in the present study because it dealt with nonverbal behavior. It was replaced by the category *other response to vocalization* (e.g., answering a child's question) because of the frequency with which this was used by

parents and home visitors. Because two other categories also show a response to the child's vocalization (e.g., expansions, repetitions), this new category was coded only when the adult's response did not fit in one of the other categories. A listing and description of all categories is given in Table 3.

The videotape was coded in 30-second intervals. At the end of each 30 seconds, coders stopped the tape and recorded which behaviors had occurred in the preceding interval. More than one behavior could be coded in each interval. A time stamp

Table 3

Description of Language Assistance Codes

Category	Definition	Example
Directives	Request for nonverbal action	"Turn the page."
Labeling	Labeling of objects or events	"It's a doggie."
Reading/conversation	Reading not requiring a response	"Then the baby was happy."
Yes/no questions	Expected answer is yes/no or nod of head	"Is it a nice doggie?"
Simple *what* questions	Can be answered with name or label	"What is the baby sitting on?"
Imitative directives	Labeling with request to imitate	"That's a balloon. You say balloon."
Praise/confirmation	Praise or compliance with request	"Yes, that's the doggie."
Open-ended questions	Nonspecific request for description	"Tell me more."
Repetition	Copy or reduced copy of child's utterance	Child: "Doggie." Mom: "Doggie."
Pointing request	Expected response is pointing	"Show me the mommy."
Expansion	Repetition with added elements	Child: "Baby." Mom: "Big baby."
Criticism/correction	Disapproval or correction	"It's not a bed."
Function/attribute questions	Expected answer is function, attribute, or action	"What color is the doggie?"
Other response to vocalization	Response to vocalization not belonging in other categories	Child: "Is it?" Mom: "A swing."

including seconds was recorded on the tape to enable easier coding of the tapes. The scheme was scored by dividing the number of instances a particular behavior occurred by the number of time intervals that were coded. This yielded a number reflecting a standardized frequency, percent of intervals with which particular behaviors occurred, that was easy to use in statistical analyses because it controlled for variations in the total duration of time. Separate scores were given for language assistance techniques used during shared book reading and those used during other activities of the home visit.

Reliability for this scheme was initially shown by examining behavior categories separately using intra-class correlations for 12 of the categories (two were not included because they were rarely used). Intra-class correlations ranged from .58 to .99 (Whitehurst et al., 1988).

In this study, videotapes were coded by two coders who established initial reliability by coding tapes of home visits that were recorded for a separate study and were not used in this study. Reliability was assessed by tallying agreement of codes and dividing the number of agreed codes by the total number of codes agreed and disagreed to yield a percent agreement. To check reliability throughout the coding process, both coders coded 20% of the tapes. Overall agreement for the coding scheme was 72%. When agreement was less than 70%, the two coders met to resolve differences.

Validity information on the coding system was not available. The system has face validity in that its categories are typical parental language facilitation behaviors, and parental language facilitation behaviors are what the system was designed to examine.

Home visitor conversation facilitation. Home visitor facilitation of parent-child conversation was scored by a single Likert-type rating. This was done to provide an overall rating of how facilitative and informative about language development home visitors were during home visits. Because such behaviors occur somewhat randomly but frequently throughout home visits, an overall rating is a more suitable choice than periodic interval ratings.

Home visitors were scored between 1 and 6. A score of 1 meant that the home visitor did little to facilitate conversation between parent and child while a score of 6 meant that the home visitor effectively and consistently facilitated conversation between parent and child.

The same coder for this measure coded all tapes. The coder had established reliability with a similar scheme prior to coding. To assess reliability, 25% of the tapes were coded several months later by the same coder. Agreement was high between the two times. There were five tapes double-coded, and the same score was given for four of these tapes (80% agreement). The scores from the other tape differed by only one point.

Child vocabulary: MacArthur CDI. The child's vocabulary was measured using the MacArthur Communicative Development Inventory (CDI; Fenson et al., 1994). This measure is based on parental report of children's vocabulary. There are several versions of the CDI. The one that was used was the CDI short form. Parents were given a list of 100 words and asked if their child used the word. Also, they were read 36 pairs of phrases differing in complexity and asked which sounded more like

something their child would say.

Reliability of the CDI has been reported as split-half correlation and test-retest ratings. Fenson et al. (1994) showed reliability using these two methods. The first was using a split-half correlation, which resulted in a Cronbach's alpha of .95. Test-retest correlations were also conducted and show high stability, ranging from .86 to .95 for different aspects of the measure.

Although reliability has been shown for this measure, it is difficult to determine the precise reliability of parent report measures. Often, it is not possible to have more than one person report on the child since frequently only one person is sufficiently familiar with the child to provide such information, and test-retest reliability is prone to parents remembering answers they gave previously and answering the same way (Fenson et al., 1994). Since a valid measure is also reliable, reliability may best be shown through validity.

To be effective, a parent report measure should focus on current skills and on skills particular to a short developmental stage (Dale, 1991). The CDI short form meets both of these qualifications. Parents are seen as a potentially rich source of information about their children as they are frequently attuned to their child's development (Fenson et al., 1994; Saudino et al., 1998; Stiles, 1994), even though they may overestimate their children's abilities. Additionally, the linguistic skills of children are difficult to measure in other ways. Certainly, self-report is not a possibility, and observations are either too long to be efficient or too short to provide adequate information.

Predictive validity of the CDI has been shown repeatedly with several measures,

including the Bayley Scales of Infant Development (.49; Saudino et al., 1998) and the Expressive One Word Picture Vocabulary Test (.73; Dale, 1991). Correlations between the CDI and other language measures range considerably, from .33 to .85 with a median of .61 (Fenson et al., 1994). The CDI has been shown to be at least as effective as more traditional methods of vocabulary assessment. Indeed, "measures of children's early language that are based on the CDI have greater predictive validity for later language development than do traditional laboratory measures" (Tomasello & Mervis, 1994, p. 175).

Stanford-Binet parent vocabulary. Parent vocabulary was assessed using the Vocabulary Test from the Stanford-Binet Intelligence Scale (Thorndike, Hagan, & Sattler, 1986). This was administered via telephone because parents were geographically remote from the research site and in-person contact would have been difficult. Parents were given words and asked to give a definition or synonym for the word. Parents were first asked to define easy words such as dollar, envelope, and parent. Words become progressively harder throughout the test. Parents were asked to define words until a ceiling level was reached. A ceiling level was reached when a participant incorrectly responded to three items in a group of four. If a parent gave a response that was ambiguous, the parent was asked to clarify until a response could be coded as either pass or fail. This is in accordance with the guidelines set forth for administration in the Stanford Binet handbook (Thorndike et al.).

To ensure standardization, instructions and the measure itself were administered in a standardized format. This is a requirement if the instrument is to obtain accurate

results (Thorndike et al., 1986). The same interviewer administered and scored all measures. Of the 17 interviews conducted, seven transcriptions of parental responses were scored by a second person. Agreement between the two scorers was 97% (163 of 168 responses were coded the same).

The Stanford-Binet is a widely used measure of IQ. The vocabulary test is often used as a measure to obtain an estimate of intellectual ability. The score on the vocabulary test decides at which point the examiner will begin testing for other portions of the test. Only the vocabulary portion of the test was administered because of the specific need to examine this variable (parental language). Scores used for analysis were the absolute number of correct definitions. There is not a need to obtain a standardized age score for parents because all are included in the same age category when administering this measure (over 18). The mean parental vocabulary score for our sample was 18.35, but parents showed much variation in scores, with a low score of 2 and a high score of 28 ($SD = 7.29$).

Design Limitations

The design employed by this study raises some concerns about internal validity. One concern is about the use of questionnaires. It is possible to introduce bias and error through the use of questionnaires (Dooley, 2001). Because the population from which the participants were selected is likely to have some limited literacy skills (Roggman, 2000), questionnaires were administered via telephone. The same person administered all interviews, and instructions given to participants were delivered in the same format. This was done to increase the likelihood that all participants received the questionnaire

interview the same way and that different answers were the result of actual differences between participants and not differences in the administration of the questionnaire interview. Answers to items on the questionnaire were fixed and mutually exclusive, suggestions given by Dooley (2001) to minimize error.

Questionnaire length was a concern because one of the original measures (the MacArthur CDI) contained over 600 items. To obtain greater participant cooperation, a standardized short form of the original measure containing 136 items was used. Short forms of this measure have been used extensively and have acceptable concurrent validity with the original longer measure (Fenson et al., 2000).

A significant problem in correlational research is determining causation. Although variables are often shown to covary, without controlling the independent variable it is difficult to show that one variable precedes and causes the other variable (Dooley, 2001). Because variables in correlational research are somewhat arbitrarily selected as independent and dependent, a rival explanation of results is reverse causation. The actual cause of the correlation could move in the direction opposite of what researchers expected. For example, although contrary to the expected belief, it is possible for differences in children's language precocity to elicit different parental assistance techniques (Olson et al., 1986). In the current sample with a 17-month age rage, age of child is likely to covary with both child language ability and adult language facilitation behaviors. Therefore, child age was controlled statistically in correlation analyses.

In addition to reverse causation, a correlation may be due to spuriousness. A

third variable may influence both the dependent and independent variables and be the actual cause of the correlation between the dependent and independent variables (Dooley, 2001). For example, a possible confounding factor of correlations between variables used in this study may be socioeconomic status (SES) differences. Although SES differences can influence development, when all participants are of a similar SES, it is likely not to dramatically influence outcomes (Payne, Whitehurst, & Angell, 1994). All participants in our sample originally met income guidelines to receive EHS services, but at the time of the interview their income ranged from $5,000 - $40,000 per year. Therefore, income was examined as a possible control variable.

Other potential control variables include parental education, age of the parents, number of people in the household, and ethnicity. These variables were chosen because they represent aspects of the home environment that may influence the language environment a child experiences and will be tested in relation to the primary variable (child vocabulary) to explore the probability of spurious correlations. If they are correlated with child vocabulary, they will be used as control variables. Showing that children's vocabulary skills covary with parental input even when other relevant variables are controlled statistically provides greater evidence for the association. Nevertheless, interpretation of causation will not be possible because this study does not show that the hypothesized causes preceded the hypothesized outcomes, which is a critical aspect of establishing causation (Dooley, 2001). Because this research was exploratory in nature, future research can address other explanations in an attempt to show causation.

Hypothesis and Data Analysis

Hypotheses for the research questions identified in Chapter I will be summarized in this section, as well as plans for data analysis. The following model, Figure 1, provides a visual model of the effects that were explored by research questions.

Research Question 1

Does the use of certain language facilitation techniques by parents correlate with greater child vocabulary? Three separate questions will address this question. Most

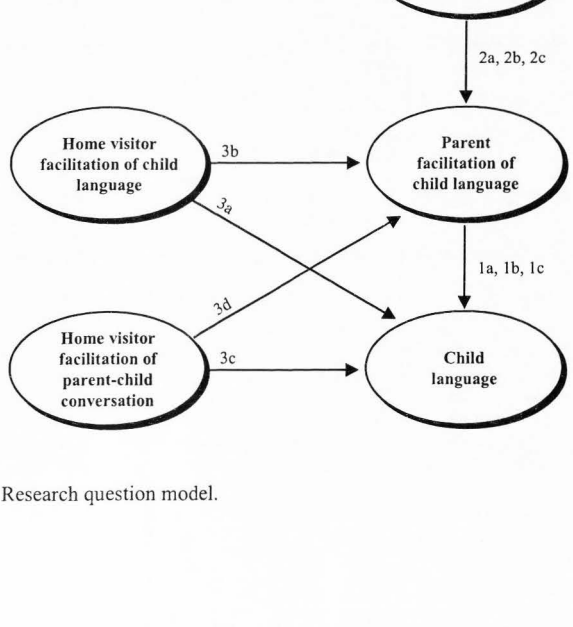

Figure 1. Research question model.

observational language development research uses either a book context or a play context. Little research looks at both contexts (Yont, Snow, & Vernon-Feagans, 2003), yet there may be important differences between contexts. For this reason, the present study will examine whether parent language facilitation techniques during shared book reading, other home visit activities, and combined across contexts correlate with child vocabulary.

It was expected that some techniques parents' use with infants and toddlers would correlate with greater child vocabulary. The techniques correlated with increased vocabulary were expected to be those that are responsive to the child (elaboration, repetition, and other response to vocalization) and encourage the child to use language. It was expected that the same techniques would be correlated with child vocabulary, independent of whether the technique was used during book reading, other home visit activities, or combined across contexts.

These questions were addressed using partial correlations between parental language facilitation behaviors and child vocabulary while controlling for child's age. This approach showed which language facilitation techniques correlated with increased vocabulary but did not provide information about whether parental behaviors increased children's vocabularies or whether children with greater vocabularies elicited different language from parents.

Question 1.a. Partial correlations were used to explore the relation between parent language facilitation behaviors combined across both contexts (shared book reading and other home visit activities) and child vocabulary while controlling for

child's age. Techniques that are responsive to the child's verbal cues and require a response from the child were hypothesized to be positively related to child vocabulary.

Question 1.b. Partial correlations were used to explore the relations between parent language facilitation behaviors during shared book reading and child vocabulary while controlling for child's age. Techniques that are responsive to the child's verbal cues and require a response from the child were hypothesized to be positively related to child vocabulary.

Question 1.c. Partial correlations were used in question 1.c to explore the relation between parent language facilitation behaviors during other home visit activities and child vocabulary while controlling for child's age. Techniques that are responsive to the child's verbal cues and require a response from the child were hypothesized to be positively related to child vocabulary.

Research Question 2

Are parent language facilitation techniques related to other parent and family characteristics? To address this question, the correlations between parent language facilitation behaviors and parent vocabulary, parent education, parent age, family size, family income, and ethnicity were explored. Previous research has shown that parent and family characteristics are related to child vocabulary and the language parents use with their children (Hart & Risley, 1995). This question explored these relations within this particular sample.

Question 2.a. Bivariate correlations were used to look at how parent characteristics are related to language facilitation techniques using a bivariate

correlation. It was hypothesized that parent vocabulary, parent education, and parent age would each be positively correlated with techniques that are responsive to children's verbal cues and require a verbal response from children.

Question 2.b. Bivariate correlations were also used to look at relations between family characteristics and parent language facilitation techniques. Family size and ethnicity (non-White) were hypothesized to be negatively related to language facilitation techniques that are responsive and require a verbal response from the child.

Question 2.c. To address question 2.c, a regression model was used to examine how variables combine to predict child verbal ability. In the first block, child age was entered. The second block consisted of the strongest correlates from the above analyses for questions 1.a, 1.b, 1.c, 2.a, and 2.b.

Research Question 3

The role of the home visitor was addressed in question 3. Four different types of possible home visitor effects were addressed by four subquestions. They are direct effects, modeling effects, follow-through effects, and indirect effects (see Chapter I for a description of these types of possible home visitor effects). Subquestions and analysis plans are discussed below.

Question 3.a. Does the use of certain language facilitation techniques by home visitors correlate with greater child vocabulary? This question is similar to question #1 but examines home visitor behaviors rather than parent behaviors. It gave information about the home visitor's role and how they can directly affect children's vocabulary. This question was examined using partial correlations between home visitor language

facilitation scores and child vocabulary while controlling for child age.

Question 3.b. Does the use of certain language facilitation techniques by home visitors correlate with parent language facilitation techniques? This question addressed how modeling language facilitation techniques can affect parent's language facilitation techniques, which may in turn affect children's verbal ability. A bivariate correlation between home visitor and parent language facilitation techniques was used to answer this question.

Question 3.c. Does the use of conversation facilitation techniques by home visitors correlate with increased child verbal ability? This question explored the follow through effect home visitors can have on child verbal ability. It was hypothesized that by facilitating conversation between parents and children during home visits, parents will effectively converse with children when the home visitor is not present, which would increase the verbal ability of the children. This question was addressed using partial correlations between home visitor conversation facilitation and child vocabulary while controlling for child age.

Question 3.d. Does the use of conversation facilitation techniques by home visitors correlate with parent language facilitation techniques? This question addressed the indirect effect of home visitors can have child vocabulary by examining if conversation facilitation is correlated with parent language facilitation. This question was analyzed by looking at bivariate correlations between home visitor conversation facilitation and parent language facilitation techniques.

CHAPTER IV

RESULTS

Statistical Significance and Effect Sizes

To provide an interpretation of statistical results, both statistical significance and effect sizes will be addressed. Correlations represent an effect size and will be listed throughout the description of results. As suggested by Cohen (1988), an effect size of .10 is considered small, .30 is considered medium, and .50 is considered large. Statistical significance allows an interpretation of the likelihood the obtained results are a result of chance.

For all questions, a *p*-value of .10 was used as a cut-off point to determine significance. A liberal *p*-value was chosen primarily to increase power. The study has a small sample size, making it more likely to fail to find actual results and thereby giving a high rate of type-II error. A slightly increased type-I error rate is not a major concern due to the exploratory nature of this study. When deciding on an acceptable alpha level for a particular study, researchers should rationally evaluate available resources and the costs and benefits of power compromised (Erdfelder, Faul, & Buchner, 1996). Because a slightly increased rate of type-I error was deemed acceptable for this study, a trade-off between type-I and type-II error was made to increase power. Using a higher *p*-value does not influence effect sizes. Effect sizes represent absolute values of correlations and are not affected by using a higher *p*-value. Nevertheless, as a result of this trade results should be interpreted cautiously within the

context of other findings in this area (Institute of Medicine, 2001). Additionally, because research questions hypothesized a specific direction for results, the analyses are one-tailed unless otherwise specified.

Data Reduction

To address some research questions, it was desirable to combine frequencies of the language facilitation techniques used during visit one and visit two. Prior to combining data from the two time points, a paired-sample *t* test was conducted to address whether there were differences between the frequencies of the techniques at the two time points. Because the second time point was between three and five months later than the first, there was some reason to believe that parents and home visitors would use different techniques as children aged. Tables 4 and 5 show the results of the paired samples *t* tests. For parents, there was only one technique that differed between the two time points--simple what questions (hereafter referred to as SWQs). Parents asked SWQs more frequently during the second home visit. For home visitors, two techniques differed--SWQs and reading/conversation. Reading/ conversation occurred more frequently during the first home visit and SWQs occurred more frequently during the second home visit. Because SWQs differed over time for both parents and home visitors, data for this technique were analyzed separately for each time point. Frequencies for other behaviors were calculated across all intervals from both home visit observations

Prior to analyzing data, there was a need to reduce some data. Specifically,

Table 4

Differences Between Parent Language Facilitation Techniques at Time 1 and Parent Language Facilitation Techniques at Time 2

	Time 1		Time 2		
Technique	*M*	*SD*	*M*	*SD*	*t* (15)
Directives	.23	.13	.25	.12	-.78
Labeling	.14	.10	.19	.11	-1.76
Reading/conversation	.14	.12	.18	.12	-.99
Simple what questions	.06	.07	.23	.12	-5.18***
Yes/no questions	.23	.14	.18	.12	.98
Imitative directives	.07	.07	.05	.06	1.36
Praise	.03	.03	.05	.05	-1.24
Open-ended questions	.01	.03	.02	.02	-.33
Repetition	.07	.08	.08	.05	-.82
Pointing request	.06	.10	.07	.10	-.22
Elaboration	.01	.02	.03	.03	-1.78
Criticism/correction	.08	.08	.07	.08	.38
Function/attribute questions	.02	.03	.02	.03	.05
Other response to child's vocalization	.04	.04	.06	.06	-1.40

*** $p \leq .001$

there were 14 language facilitation techniques. Examining the correlations of all 14 categories separately would result in a further increased alpha level. Several things were done in an effort to reduce the number of correlations. First, the frequencies of each technique were analyzed. Techniques with low frequencies were considered for elimination from further analyses. Second, the intercorrelations between techniques were examined to explore the possibility of combining techniques into conceptual constructs. Intercorrelations are given in Appendix C. Language facilitation techniques

Table 5

Differences Between Home Visitor Language Facilitation Techniques at Time 1 and Home Visitor Language Facilitation Techniques at Time 2

	Time 1		Time 2		
Technique	*M*	*SD*	*M*	*SD*	*t* (15)
Directives	.18	.20	.12	.07	1.22
Labeling	.22	.12	.20	.14	.53
Reading/conversation	.21	.10	.13	.09	2.388
Simple what questions	.09	.08	.15	.12	-2.25*
Yes/no questions	.33	.17	.35	.12	-.68
Imitative directives	.03	.04	.01	.02	1.78
Praise	.08	.06	.10	.08	-1.38
Open-ended questions	.01	.02	.01	.02	-.11
Repetition	.10	.12	.12	.13	-.63
Pointing request	.05	.07	.04	.05	.47
Elaboration	.02	.03	.03	.04	-.57
Criticism/correction	.03	.04	.01	.02	1.44
Function/attribute questions	.02	.05	.02	.02	.67
Other response to child's vocalization	.04	.05	.05	.05	-.14

*$p \leq .05$

were then combined into two conceptual constructs. The first construct was labeled responsiveness and was composed of repetitions, expansions, and other responses to children's vocalizations. The alphas for this construct were .75 for parents and .60 for home visitors. It was hypothesized that this construct would be positively related to child vocabulary because the behaviors that make up the construct are responsive to child's attempts at verbal communication.

The second construct was labeled general conversation and was composed of

labeling, directives, yes/no questions, pointing requests, praise, and reading/ conversation. The alphas for this construct were .74 for parents and .82 for home visitors. It was hypothesized that this construct would be either unrelated or negatively related to child vocabulary as the techniques that make up this construct are not responsive to the child and do not require a verbal response from the child.

Five language facilitation techniques were not included in the conceptual constructs. As discussed earilier, SWQs were examined separately because there was a significant difference in frequency of use between time 1 and time 2 for both parents and home visitors. Four techniques (imitative directives, criticism/correction, open-ended questions, and function/attribute questions) were not included in conceptual constructs for two reasons. First, they did not show a clear pattern of inter-correlations and second, they had a low frequency for both parents and home visitors at both time points.

Description of Data

Descriptive information was analyzed for all data used in analyses. This was done to examine normality of the data. Mean scores, maximum scores, minimum scores, and standard deviations are listed in Appendix D. In addition, data skew and kurtosis were examined visually and statistically. Data were fairly normally distributed. Collinearity between variables used in analyses was examined by looking at tolerance levels, which were high enough to use the variables without adjustments. Missing data were treated as missing and not used in analyses. Also, possible correlations between child verbal ability and parent and family characteristics were examined to find any

variables that may cause spurious correlations. None of the parent or family characteristics were statistically significantly related to child language ability.

There was one father who participated in the study. To examine possible differences in the data because of this, questions were analyzed both with and without him included. Because few results differed with him included, and because excluding him would further reduce the sample size, he was included in the analyses described below.

A research assumption was that parents would use different language facilitation techniques during shared book reading than during other home visit activities. Shared book reading was assumed to be a time when parents deliberately teach children language. As such, it was assumed that parents would talk more during shared book reading than at other times during the home visit. To address this question, parent language facilitation techniques used during shared book reading and during other home visit activities were compared using a paired-samples *t* test. Table 6 shows results from

Table 6

t Test for Differences Between Techniques During Book Reading and Other Activities

	Book reading		Other activities		
Variable	*M*	*SD*	*M*	*SD*	*t*
Responsiveness (n = 14)	.13	.11	.03	.02	3.56**
General conversation (n = 14)	.32	.08	.12	.06	9.11***
SWQs time 1 (n = 12)	.07	.07	.42	.32	3.88**
SWQs time 2 (n = 14)	.20	.12	.43	.30	3.10**

** $p \leq .01$
*** $p \leq .001$

this analysis. The *t* test for differences showed a difference between contexts for each *t* test. Parent responsiveness, general conversation, and SWQs were all used more frequently in shared book reading than during other home visit activities. Therefore, these behaviors were analyzed separately within each context in addition to overall in the combined context.

Addressing Research Questions

Each research question (see Chapter III), will be addressed in turn. Correlations are given in the text as well as in tables to give an estimate of effect size of reported results. Three parent contexts of language facilitation were used for analyses--combined across both contexts, during shared book reading, and during other home visit. Because there was not a book reading context for home visitors, only one context will be used for analyses of home visitor behavior.

Research Question 1

The first question asked whether parent language facilitation techniques are correlated with child vocabulary and three subquestions were used to answer this question. It was hypothesized that techniques that are responsive to the child or require a verbal response from the child would be positively correlated with child vocabulary, while other techniques would either be uncorrelated or negatively correlated with child vocabulary. For these analyses, age of child is used as a control variable and correlations are given in Table 7.

Research question 1.a. Research question 1.a asked if language facilitation

Table 7

Correlations Between Parent Language Facilitation and Child Vocabulary

Variable	CDI total score	CDI words subtest	CDI phrases subtest
Responsiveness across contexts (n = 17)	.33	.28	.34+
General conversation across contexts (n = 17)	-.06	.06	-.19
SWQs time 1 across contexts (n = 15)	.24	.24	.20
SWQs time 2 (n = 16)	-.06	-.01	-.11
Responsiveness book reading (n = 13)	.22	.15	.29
General conversation book reading (n = 13)	-.72**	-.78**	-.59*
SWQs book reading (n = 13)	.41+	.43+	.35
Responsiveness other activities (n = 17)	.17	.13	.20
General conversation other activities (n = 17)	-.11	-.01	-.20
SWQs time 2 other activities (n = 16)	-.37+	-.38+	-.32

\+ $p \leq .10$
* $p \leq .05$
** $p \leq .01$

techniques parents used combined across all contexts were correlated with child vocabulary. As predicted, parent responsiveness was statistically significantly positively related to the CDI phrases score, $r = .34$, $p = .10$. All other correlations were nonsignificant, but with the exception of SWQs at time 2, correlations were in the predicted direction and ranged from $r = -.19$ to .33.

Research question 1.b. Research question 1.b asked whether parent language facilitation techniques used during shared book reading were correlated with child vocabulary when controlling for child age. The pattern of results is consistent with the hypothesis that techniques that are responsive to the child or that require a verbal response from the child would be positively correlated with child language while other

techniques would be either uncorrelated or negatively correlated with child language ability. SWQs during shared book reading were positively correlated with CDI words score, $r = .43$, $p = .08$, and CDI total score, $r = .51$, $p = .09$. Parent general conversation during shared book reading was negatively related to all three estimates of child vocabulary, $r = -.78$, $p = .002$ to $r = -.59$, $p = .02$. Responsiveness is again positively correlated with child vocabulary scores, but not statistically significantly, $r = .15$ to $r = .29$.

Research question 1.c. Research question 1.c asked whether language facilitation techniques used in other home visit activities would be correlated with child language ability while controlling for child age. With the exception of SWQs, the pattern of results for this question is again fairly consistent with predictions. SWQs were negatively related to child vocabulary, and two of the correlations were statistically significant: SWQs with CDI words score ($r = -.38$, $p = .08$) and SWQs with CDI total score ($r = -.37$, $p = .09$). No other correlations were statistically significant, but all were in the predicted direction and range from $r = -.20$ to $r = .20$.

Research Question 2

The second research question asked about relations between parent language facilitation techniques and other parent and family characteristics. Although both parent and family characteristics represent aspects of the home environment, parent characteristics (education, age, and vocabulary score) were examined separately from family characteristics (ethnicity, income, and family size) to explore which individual and familial characteristics may influence language. It was hypothesized that parent

language facilitation techniques would be related to parent and family characteristics. Research question 2.a hypothesized that parents who were more highly educated, older, and scored higher on a measure of vocabulary would exhibit more responsive and language eliciting techniques than other parents. Research question 2.b further hypothesized that parents in White families with higher income and fewer people in the home would exhibit more responsive and language eliciting techniques than other parents.

Research question 2.a. To address research question 2.a, the correlations between parent characteristics and the language facilitation techniques they used combined across contexts, during shared book reading, and during other home visit examined separately. Correlations are shown in Table 8. Correlations showed a complex pattern of results. Parents who were more highly educated used more responsiveness during shared book reading, $r = .64, p = .01$. All but two of the other correlations between parent education and parent language facilitation techniques were in the hypothesized direction, but none were statistically significant. Parents' age was positively related to SWQs at time 2 both across contexts, $r = .34, p = .10$, and during other activities at time 2, $r = .57, p = .01$, but was not statistically significantly related to any other parent behaviors. Parents who scored higher on the Stanford-Binet measure of vocabulary used more responsiveness during book reading, $r = .38, p = .10$, and more SWQs during book reading, $r = .50, p = .04$.

Research question 2.b. Research question 2.b asked if family characteristics were correlated with language facilitation techniques used. As in question 1.a, language

Table 8

Correlations Between Parent Characteristics and Parent Language Facilitation

Variable	Parent education	Parent vocabulary	Parent age
Responsiveness across contexts (n = 17)	.19	.29	.30
General conversation across contexts (n = 17)	-.17	.27	.01
SWQs time 1 across contexts (n = 15)	.04	-.07	-.14
SWQs time 2 (n = 16)	.32	.28	.34+
Responsiveness book reading (n = 13)	.64**	.38+	.31
General conversation book reading (n = 13)	.08	-.14	.30
SWQs book reading (n = 13)	.24	.50*	-.01
Responsiveness other activities (n = 17)	-.03	.24	.24
General conversation other activities (n = 17)	-.20	.24	-.01
SWQs time 2 other activities (n = 16)	.11	.07	.57**

\+ $p \leq .10$
* $p \leq .05$
** $p \leq .01$

facilitation techniques combined across contexts, during book reading, and during other home visit activities were examined separately. Correlations are shown in Table 9. Minority status (non-White) was hypothesized to be positively related to parent general conversation and negatively related to parent responsiveness and SWQs. These relations were not shown, and many relations were in the opposite from predicted direction. Income was not statistically significantly related to any parent language facilitation behaviors, but most correlations were in the predicted direction. Family size was negatively related to SWQs at time 1, r = -.47, p = .04, but not to any other parent language facilitation behaviors.

Research question 2.c. To explore any possible mediating variables in

Table 9

Correlations Between Family Characteristics and Parent Language Facilitation

Variable	Income	Minority[a]	Family size
Responsiveness across contexts (n = 17, 20)	.04	.09	-.20
General conversation across contexts (n = 17, 20)	-.09	-.30	-.13
SWQs time 1 across contexts (n = 15, 18)	.27	-.16	-.47*
SWQs time 2 (n = 16, 17)	.19	-.20	.10
Responsiveness book reading (n = 13, 14)	.25	.38	-.33
General Conversation book reading (n = 13, 14)	.23	-.07	-.04
SWQs book reading (n = 13, 14)	.08	.32	-.17
Responsiveness other activities (n = 17, 20)	-.001	.15	-.21
General Conversation other activities (n = 17, 20)	-.004	-.25	-.20
SWQs time 2 other activities (n = 16, 17)	.31	-.21	.21

[a] *Note.* n sizes for ethnicity are the second number in parentheses
* $p \leq .05$

predicting child language ability, a regression analysis was conducted using the strongest correlates with child language ability from the above bivariate analyses as predictor variables in a regression equation. Parent general conversation across contexts and parent vocabulary were the strongest bivariate correlates of child language and were chosen for this analysis. Child age was entered in the first model as a control variable. Parent general conversation and parent vocabulary were added in the second model. Results showed that the R^2 change from model 1 to model 2 was significant (F = 7.13, p =.01). Of the three variables in model 2, child age and parent General Conversation both accounted for a significant amount of variance (t = 4.1, p = .003, and t = -3.2, p = .01), but parent vocabulary did not contribute significantly to the model predicting child vocabulary. Table 10 shows the results from this analysis.

Table 10

Regression Analysis Predicting Child Vocabulary

Variable	β	R^2	ΔR^2
Model 1		.48	
Child age	.69**		
Model 2		.80	.32*
Child age	.65**		
Parent general conversation	-.48*		
Parent vocabulary	.24		

$N = 17$
* $p \leq .05$
** $p \leq .01$

Research Question 3

Research question 3 asked if home visitor language facilitation behavior was correlated with child language ability and with parent language facilitation. It was hypothesized that home visitor language facilitation techniques would be correlated with child vocabulary and parental language facilitation techniques. It was further hypothesized that a global rating of home visitor facilitation of parent-child conversation would be correlated with child language ability and parent language facilitation techniques. Four separate research questions were addressed and will be discussed below.

Research question 3.a. Research question 3.a addressed the direct effect of home visitors by using a partial correlation, controlling for child age, to examine whether language facilitation techniques used by home visitors were correlated with child vocabulary. The hypothesis was the same as it was for parents--techniques that were responsive to the child and that required a verbal response from the child would be

positively correlated with child vocabulary while other techniques would be not correlated or would be negatively correlated with child vocabulary. Resulting correlations are shown in Table 11. All but one correlation followed the predicted direction. Correlations between responsiveness and child vocabulary were all positive but not statistically significant, $r = .19$ to $r = .21$. The correlation between general conversation and CDI phrases score was statistically significant in the predicted direction, $r = -.35$, $p = .09$. Other correlations between general conversation and child vocabulary were in the predicted direction, but were not statistically significant. Correlations between SWQs and child vocabulary ranged from $r = -.02$ to $r = .28$. All were nonsignificant.

Research question 3.b. Research question 3.b examined the effect of home visitors' modeling language facilitation by examining whether home visitor language facilitation techniques were correlated with the same parent language facilitation techniques. It was hypothesized that parents would imitate the techniques modeled by home visitors, resulting in correlations between individual behaviors and constructs.

Table 11

Correlations Between Home Visitor Language Facilitation and Child Vocabulary

Variable	CDI total score	CDI words subtest	CDI phrases subtest
Responsiveness across contexts ($n = 17$)	.21	.19	.20
General conversation across contexts ($n = 17$)	-.33	-.28	-.35+
SWQs time 1 across contexts ($n = 15$)	.13	-.03	.28
SWQs time 2 ($n = 16$)	.02	.01	.03

+ $p \leq .10$

Home visitor responsiveness was positively correlated with parent responsiveness combined across contexts, $r = .67$, $p = .001$, parent responsiveness during shared book reading, $r = .42$, $p = .07$, and parent responsiveness during other home visit activities, $r = .54$, $p = .01$. Home visitor SWQs at time 1 were positively correlated with parent SWQs at time 1, $r = .50$, $p = .02$. Other correlations were not significant.

Research question 3.c. Research question 3.c asked if degree of facilitation provided by the home visitor for conversation between parent and child was related to child vocabulary. This question addresses the follow-through effect of home visitor conversation facilitation, and partial correlations are given in Table 12. It was hypothesized that more facilitation of parent-child conversation would be correlated with higher child vocabulary. Scores from time 1 and time 2 were averaged together to look at home visitor conversation facilitation over time. Correlations were in the predicted direction, but were not statistically significant, $r = .16$ to $r = .26$.

Research question 3.d. Research question 3.d asked whether home visitor conversation facilitation had an indirect effect on parent language facilitation techniques. Bivariate correlations were used to explore relations between home visitor conversation facilitation and parent language facilitation techniques. The three contexts of parent behavior were examined separately. Correlations are given in Table 12. There were several statistically significant correlations. Home visitor conversation facilitation was positively related to parent responsiveness combined across contexts, $r = .41$, $p = .04$, during shared book reading, $r = .37$, $p = .10$, and during other home visit activities. It was also positively related to parent SWQs at time 1, $r = .48$, $p = .02$, and during

Table 12

Correlations Between Home Visitor Conversation Facilitation and Child Language Ability and Parent Language Facilitation

Variable	Home visitor conversation facilitation
Responsiveness across contexts (n = 20)	.41*
General conversation across contexts (n = 20)	.10
SWQs time 1 across contexts (n = 18)	.48*
SWQs time 2 (n = 17)	-.04
Responsiveness book reading (n = 14)	.37+
General conversation book reading (n = 14)	-.26
SWQs book reading (n = 14)	.37+
Responsiveness other activities (n = 20)	.46*
General conversation other activities (n = 20)	.16
SWQs time 2 other activities (n = 17)	-.12
CDI total score	.23
CDI words subtest	.26
CDI phrases subtest	.16

\+ $p \leq .10$
* $p \leq .05$

shared book reading, $r = .37$, $p = .10$. Other correlations were not statistically significant.

CHAPTER V

DISCUSSION

Discussion of Findings

This study examined how parents use different techniques to facilitate children's language development and how home visitors can help parents in this process. Vygotsky's theory of contextual development was used to guide the research. This theoretical perspective is useful for looking at language development in the context of interpersonal relationships and provides a basis for making hypotheses about how parents can effectively facilitate children's language development and how home visitors can best help parents facilitate children's language development.

This study builds on previous research in this area by looking at very young children. Most research has focused on preschool-aged children, but because much language development occurs before this time, it is important to look at children of younger ages to better understand how parents and home visitors can work with young children to promote effective language development. For this study, two home visits to families participating in an Early Head Start (EHS) program were videotaped. Tapes were coded for parent and home visitor language facilitation behaviors, and home visitors were given a global rating for facilitation conversation between parent and child during the visit. After the second tape was completed, parents were interviewed to obtain family demographic information. During this interview, parents were given a vocabulary test to provide an estimate of parent vocabulary. Parents also completed a

report to provide an estimate of child vocabulary.

Different aspects of parent-child-home visitor interaction were examined and relations were explored among parent behaviors and characteristics, home visitor behaviors, and child vocabulary. Results of analyses are discussed below, organized using the research questions outlined in Chapter I. Vygotsky's theory will provide a theoretical context for interpreting results.

Parent Influence on Child Language

It was hypothesized that techniques that were responsive to children's communicative attempts and that required children to respond verbally would be positively correlated with child vocabulary while other techniques would be not correlated or would be negatively correlated with child vocabulary. Several relations were found that support this hypothesis. Parent responsiveness across contexts was positively related to child vocabulary and parent (SWQs) during book reading were positively related to child vocabulary while parent general conversation during book reading was negatively related to child vocabulary.

It was hypothesized that responsiveness and SWQs would promote language development for two reasons. First, previous research shows that responsiveness and asking "what" questions are related to pre-school aged children's verbal ability (Whitehurst et al., 1994). It was hypothesized that using similar techniques with younger children would promote vocabulary. These techniques were also hypothesized to be related to children's vocabulary because responsiveness to verbal cues and using SWQs occur within the zone of proximal development (ZPD), which Vygotsky (Rieber,

1998) suggests is important for providing effective support for children's' development.

Scaffolding children's development within the ZPD requires responsiveness to children's cues. When adults are responsive to children's communication attempts, it encourages children to use language and allows them to communicate in a way they would not be capable of without a more capable communicator scaffolding their attempts at communication. When adults are not responsive to children's verbal cues, verbal ability is not effectively facilitated.

Labeling is one technique that makes up general conversation. One of the first ways adults are able to respond to child's verbal cues is by labeling objects of interest to the child through joint attention. This may be related to very early language development (Morales et al., 2000), but Arnold et al. (1994) noted that adults must progressively change their techniques for facilitating children's language as children progress in ability. These results indicate that when adults do not develop more advanced ways of responding to children's cues, children's vocabulary does not develop as rapidly as it could with effective facilitation.

Parent and Family Characteristics

Parent characteristics. Of the parent and family characteristics examined, parental education, parent vocabulary score, and parent age were related to parent use of language facilitation techniques in the hypothesized direction. Parent education and parent vocabulary were both positively correlated with parent Responsiveness during shared book reading. This mirrors work by Hart and Risley (1995) showing that parental education strongly influences the quality of language children to which are

exposed. That more highly educated parents use more responsive language facilitation techniques during shared book reading is interesting given that using responsive language techniques was related to child vocabulary in this study and has been shown in other studies to be correlated with child verbal ability (Baumwell et al., 1997; Hoff-Ginsberg, 1991; Landry et al., 1997; Steelman et al., 2002).

The relation between parent education and Responsiveness is also similar to research by Arnold et al. (1994) showing that there are differences in the amount of responses to children's language between low-SES and high-SES parents, with low-SES parents being less likely to adjust their language to the abilities of their children during shared book reading. That more highly educated parents are more responsive during shared book reading is an important finding for intervention programs that focus on promoting shared book reading, as research has shown that it is possible to teach parents to use certain language facilitation behaviors in that context (Arnold et al., 1994; Valdez-Menchacha & Whitehurst, 1992; Whitehurst et al., 1988). Teaching parents to use responsive language facilitation techniques during shared book reading may be an effective way to increase the emerging language of very young children.

Parent vocabulary score was related to parents' SWQs during shared book reading, and parent age was related to parents SWQs across contexts and during other activities at time 2. This is similar to work by Whitehurst et al. (1994) showing that high SES parents more frequently used "what" questions than low SES parents. Parents with higher vocabulary scores were hypothesized to be more effective language facilitators, which include prompting children to respond to SWQs. This is an effective

way of using the ZPD to promote vocabulary growth because it prompts children to use words they may not produce otherwise.

Family characteristics. An interesting and surprising relation was found when exploring family characteristics in relation to parent language facilitation techniques. Minority status of the family was rarely correlated with parent language facilitation techniques in the predicted direction. Two possibilities for this will be discussed.

First, one way minority status may influence the language facilitation behaviors of parents is by whether or not English is a first or second language for the parents. For families in which English is the first language, minority status will likely have less of an influence on language facilitation than for families in which English is a second language. Data were not obtained on whether English was a first or second language for the family. Many of the families in this study were Native American and it is not known if English is a first or second language for these families. It is possible that for families of similar SES, minority status does not influence language facilitation behaviors unless English is a second language. This provides an interesting question for future research in this field.

Another way minority status may influence language facilitation behaviors is through particular cultural values regarding the importance of language experiences for children. Different cultures have different values regarding childrearing and the encouragement of child language (DeGenova, 1997). Family ethnicity was coded as either White or non-White. Families in which one parent was White and one was non-White were coded as non-White. This was the case for half of the families in the study.

For families in which only one parent is of minority status, the language environment may be different than for families in which both parents are of minority status. Furthermore, it may be the ethnicity of the primary caregiving parent that has the most effect on child's language development.

The peculiar relations shown in this data highlight the need for future research to explore language contexts of minority families. Vygotsky (1962) recognized that development is influenced by cultural context. The ZPD is also influenced by culture. Although shared book reading is a common activity for Caucasian parents and children, this may not be as common in other cultures. This context may have a different meaning for minority cultures. Perhaps other parent-child interaction contexts would be more appropriate for exploring how parents facilitate children's language development within the ZPD in minority cultures.

The regression model predicting child vocabulary showed that using parent general conversation, parent vocabulary, and child age in the model accounted for a significant change in ability to predict scores than when using only child age to predict scores. Specifically, parent general conversation significantly contributed to the prediction of child vocabulary beyond what was predicted by child age and parent vocabulary. This is an important finding because it shows that what parents do to promote conversation can contribute to vocabulary growth beyond what could be predicted by parent characteristics.

Home Visitor Influence

Home visitors' language facilitation techniques were found to be directly related

to children's vocabulary. General conversation was negatively correlated with child vocabulary, as was predicted. This finding is in line with the hypothesis that techniques that facilitate children's verbal ability are responsive to the child, as this technique is not necessarily responsive to children's attempts at communication. This finding is important because it shows that even though home visitors are in the home for a very short period of time, they have the ability to influence the context of language to which children are exposed. This is also interesting because general conversation was also negatively correlated with child vocabulary when used by parents during shared book reading. Together, these two findings illustrate the idea that all talk is not the same – some talk is more effective than other talk in facilitating language.

A modeling effect of home visitors was found when looking at the relation between language facilitation techniques home visitors use and language facilitation techniques parents use. It was predicted that parents would use more of the techniques modeled for them by home visitors, resulting in correlations between the same factors, and this relation was found for some techniques. Home visitor responsiveness was related to parent responsiveness in all three contexts. Home visitor SWQs were related to parent SWQs combined across contexts and during other home visit activities.

These findings are exciting when evaluated in the context of Vygotsky's theory regarding the importance of working within the ZPD for developmental growth. Modeling responsiveness to children's language attempts appears to be an effective way of promoting parental responsiveness to children's language. This finding suggests that home visitors and parents may use similar language facilitation techniques, but we do

not know about the direction of this relation and further research should be conducted to better understand how home visitors can act as models of appropriate language facilitation.

There was an indirect effect of home visitor conversation facilitation on parent facilitation techniques. Several correlations were found in the hypothesized direction. It was hypothesized that when home visitors had higher conversation facilitation scores, parents would exhibit more responsive and language eliciting techniques. Indeed, there was a relation between home visitor conversation facilitation and responsiveness in both contexts, separately and combined, as well as between home visitor conversation facilitation and SWQs across contexts and during shared book reading. This is an interesting finding. Although scaffolding is usually identified as a means of facilitating children's development, the idea of home visitors helping parents learn appropriate language facilitation behaviors can also be thought of as scaffolding. This is also an important finding when viewed in terms of Bronfenbrenner's ecological theory. For young children, the family is the system that most directly influences development (Bronfenbrenner, 1992). Promoting a responsive and language eliciting family environment is one of the most effective ways for home visitors to promote verbal growth. This finding shows that there is a relation between conversation facilitation and parents using more responsive and language eliciting techniques with children.

Limitations and Suggestions for Future Research

There are several limitations of this study that need to be addressed in the

context of findings. Limitations will be listed below and each will include a discussion of how this could affect findings and how findings should be interpreted.

First, data were collected from only 20 families, which is a very small sample size. The small sample size results in low power, making it difficult to detect relations between variables. This means that there may actually be more relations than were found, but they were not detected because of the small sample size. Some effect sizes are large enough that they would likely be of practical importance, but it is hard to draw conclusions without statistical significance. For example, there were no statistically significant relations found for question 3.c, but correlations were in a direction consistent with the hypothesis. Valuable information about the role of the home visitor in facilitating children's language development and helping parents facilitate development could possibly be found with a larger sample size, because a larger sample size would allow relations to be more easily detected.

Another limitation of this study is the study design. When correlations are used, it is impossible to know anything about causality. Correlations mean that two variables covary, but we do not know if one variable is actually causing variation in the other variable. For example, in this study there may be something about the child that causes the parent to use certain language facilitation behaviors, or there may be another variable that causes parents to use certain language facilitation behaviors and also causes children's language to develop in a certain way. As this study was exploratory, it was not necessary to know about cause and effect, but future research in this area using an experimental research design would provide an indication of causality.

Perhaps families could be randomly assigned to a condition which varied the typed of home visit intervention received by the family to better understand how different home visiting programs influence families.

Participants in this study represent a fairly unique population of low-income, rural, southeastern Utahns. This sample was chosen because of the particular challenges children in this region face during language development. Because of this and because of the small sample size, the generalizabilty of findings to other populations is limited. Future research should be conducted in diverse groups to determine to what degree results can be generalized to other populations.

Because the sample was chosen to represent a unique population, there may not have been enough variability in participants to see some differences. For example, previous research has shown that the SES influences the way parents communicate with their children (Hart & Risley, 1995; Ninio, 1980), yet our data did not find that income was correlated with the techniques parents use to facilitate children's language. It is possible that a difference was not found because there was not enough variability in income in our sample. Additionally, income may not accurately represent the SES of the family unless variables other variables (e.g., family size, crowding in the home) are taken into account. More variability in family income and a larger sample size would likely allow us to see differences in parent language facilitation techniques as a result of income.

Finally, using a parental report measure of child vocabulary makes data susceptible to parental perceptions of children and also parental desire to perform well.

Parents are generally reliable sources of information about children's vocabulary (Fenson et al., 1994; Saudino et al., 1998; Stiles, 1994); however, results of this study could be strengthened and replicated using other measures of children's vocabulary. For children this young, it would be difficult to assess them directly, but perhaps a log or transcript of children's language would be a useful outcome measure. Also, future research could measure child language at more than one time point. Looking at how the language facilitation techniques parents use when children are young are related to later language ability would provide an indication of how parent language facilitation behaviors affect the long-term trajectory of child language outcomes.

Conclusion

Early childhood verbal ability is a critical component of later academic success (Beck & McKeown, 2002; Roggman, Newland, Slocum, Cook, & Boyce, 2000; Scarborough, 1990). Between the ages of one and two years, children rapidly increase in vocabulary. This study examined children at this age to better understand how parents can facilitate children's language development, and how home visitors can help parents to do this. Findings from this study and future studies in this area of research are important for early intervention programs like EHS (ACYF, 2002) or Even Start (U.S. Department of Education, n.d.), which have focused on increasing early literacy skills and use home visits as a means of service delivery

Several findings from this study correspond with Vygotsky's theory of how adults can best facilitate children's learning within the ZPD (Rieber, 1998).

Additionally, several effects of home visitors' were found that illustrate the possible ways in which home visitors can influence a child's language environment. Future research in this area should focus on the techniques home visitors can use to help parents learn to use effective language facilitation techniques with their children, which will in turn better prepare very young children for later academic success.

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APPENDICES

Appendix A

Informed Consent

Informed Consent

VISIT: Visions and Interventions to Stimulate Interaction and Talk

Purpose: The purpose of this study is to explore what parents can do to help toddlers' language development. We hope to learn more about how parents promote early language and, for families in infant -toddler programs, how home visitors can help them.

What does participation involve? I understand that:
When my infant is 24 months old a researcher will schedule a telephone interview with me in the language I prefer (for example, Spanish).
2 of our regularly scheduled home visits will be videotaped when my infant is between 12 and 24 months.

Assurances: I understand that:
Being part of this study will cost me nothing. I will receive $10 for each videotaped home visit and for the telephone interview for a total of $30 after all three are complete.
All information related to my infant and me will be treated in strict confidence to the full extent provided by law. My identity will be indicated only by a code number and will not be associated with any published results. My code number and identity will be stored separately in a locked file
Videotapes will be kept indefinitely for research purposes only. For use for any other educational purposes, I will be contacted directly and asked for separate permission.
My infant and I may withdraw from this study at any time without consequence.
If during this study child abuse is disclosed, it is required that staff reports abuse to authorities.

IRB Approval: The Institutional Review Board for the protection of human subjects at Utah State University has reviewed and approved this research project

Investigator Statement: "I certify that the research study has been explained to the above individual, by me or my research staff or collaborating program staff, and that the individual understands the nature and purpose, the possible risks and benefits associated with taking part in this research study. Any questions that have been raised, have been answered."

_____
Lori A. Roggman, Project Director
435-797-1545

_____
Child's Name

_____ _____
Parent's Signature **Date**
Address: _____
City, State, Zip: _____

Appendix B

Parent Interview

VISIT-1 Research
Date: _____
Start time: _____
Interviewer: _____
Child ID#: _____

Phone Interview

Hello, I'm (first name only) from the VISIT-1 Research Project at Utah State University. You have participated in this research project by making videotapes of home visits. We are glad you agreed to participate in this project. The final phase of the project is a phone interview. This interview will give us information about (child's name) and your family routines. Upon completion of this interview, you will be sent a check for $10.

The interview will last about thirty minutes. Is this a good time or can we schedule a different time to complete the interview? (If the participant says this is a good time, continue with the interview. If it is not a good time, schedule a specific time to call back).

All the information you give me is confidential. Neither your name nor (child's name) will be attached to any of the information you give us. If there is ever anything you are not comfortable talking about, please let me know and we will skip that part.

1. How many people are living in your household at this time? _____

2. Has this number been consistent for the past six months? (Yes / No) If not, please describe what changes have taken place

_____

_____

_____

3. Please tell me how these people are related to (CHILD).

(circle all that apply and record number)

FATHER	01 _____
STEPPARENT	02 _____
AUNT. UNCLE	03 _____
GRANDPARENT OR GREAT GRANDPARENT	04 _____
SIBLING	05 _____
STEPSIBLING	06 _____
NEPHEW OR NIECE	07 _____
COUSIN	08 _____
OTHER RELATIVE OR IN-LAW	09 _____
NON-RELATIVE ADULT	10 _____
NON - RELATIVE CHILD	11 _____
OTHER (SPECIFY)	12 _____

_____

MOTHER	13 _____

4. What is the month and year of your birth? _____

5. What is the month and year of other parent's birth? _____

6. What is the current relationship between you and the child's other parent?

MARRIED	01	DIVORCED	02
SEPARATED	03	WIDOWED	04
LIVING TOGETHER, UNMARRIED	05	NEVER MARRIED	06

7. In the last year, what was the amount of money all members of your family received before taxes and other deductions? Please include your own income and that of all members of your family who lived with you. Include money you received from jobs, welfare, or any other source.

PROBE: Your best estimate would be fine.

$ ___ ___ , ___ ___ ___ FAMILY INCOME

Would you say it was…

less than $3,000	01
between $3,000 and $4,500	02
between $4,500 and $6,000	03
between $6,000 and $7,500	04
between $7,500 and $9,000	05
between $9,000 and $10,500	06
between $10,500 and $12,000	07
between $12,000 and $13,500	08
between $13,500 and $15,000	09
between $15,000 and $16,500	10
between $16,500 and $18,000	11
between $18,000 and $21,000	12
between $21,000 and $24,000	13
between $24,000 and $27,000	14
between $27,000 and $30,000, or	15
over $30,000	16
DON'T KNOW	-1
REFUSED	-3

8. How often do you do the following with your child…

More than once a day….. 01		About once a day……..02				
A few times a week……..03		A few times a month….04				
Rarely……...05		Not at all……...06				
A. Sing nursery rhymes	01	02	03	04	05	06
B. Sing songs	01	02	03	04	05	06
C. Read stories	01	02	03	04	05	06
D. Tell stories	01	02	03	04	05	06

9. About how often do you read at home? Is it…

	CIRCLE ONE
Every day or almost every day	01
A few times a week	02
Once a week (Only on Sunday)	03
A few times a month	04
A few times a year, or	05
Never?	06

10. Sometimes the only chance a parent gets to read is when her (child is/children are) asleep or being cared for by someone else When do you do your own reading? Is it...

	CIRCLE ONE
Only when (child is/children are) around	01
Only when (child is/children are) asleep or with someone else	02
Sometimes when (child is/children are) or with someone else	03
Or do you never have the time or opportunity for your own reading	04

11. About how often do you read a newspaper? Is it...

	CIRCLE ONE
Every day or almost every day	01
A few times a week.	02
Once a week (Only on Sunday)	03
A few times a month	04
A few times a year, or	05
Never?	06

12. About how many books do you have in the house? Is it

PROBE: Books that are written for adults, not children.

	CIRCLE ONE
1-9	01
10-20, or	02
More than 20	03
None	04

13. For each of the following statements, please tell me if you strongly agree. mildly agree, mildly disagree or strongly disagree.

	Strongly Agree	Mildly Agree	Mildly Disagree	Strongly Disagree
A You believe it is important to spend a lot of time talking to your children even before they can understand whatever it is you are saying.....	04	03	02	01
B. Talking to a baby who can't talk may keep the parent occupied but it probably has no effect on the baby.....	04	03	02	01
C. Reading to a child before the child is two years probably has little effect on the child.....	04	03	02	01

14. Are you currently working, in school, in a training program or doing something else?

CIRCLE ALL THAT APPLY

WORKING	01
UNEMPLOYED	02
LOOKING FOR WORK	03

(CONTINUED)

LAID OFF	04
IN SCHOOL/TRAINING	05
IN JAIL	06
IN MILITARY	07
SOMETHING ELSE (SPECIFY)	08
_____	
DON'T KNOW	-1
RETIRED	09

I5. Is (OTHER PARENT) currently working. in school, in a training program or doing something else?

	CIRCLE ALL THAT APPLY
WORKING	01
UNEMPLOYED	02
LOOKING FOR WORK	03
LAID OFF	04
IN SCHOOL/TRAINING	05
IN JAIL	06
IN MILITARY	07
SOMETHING ELSE (SPECIFY)	08
_____	
DON'T KNOW	-1
RETIRED	09

16. How many years of schooling have you completed? _____

17. How many years of schooling has the child's other parent completed?_____

18. What types of degrees, diplomas, or certificates have you received?

	CIRCLE ALL THAT APPLY
A. None	01
B. Elementary, Middle, or Junior High School Diploma	02
C. ABE or Adult Basic Education certificate {PRE-GED)	03
D. GED Certificate	04
E. High School Diploma	05
F. AA or Associates Diploma or Degree (Two-Year)	06
G. BA or BS or College Diploma or Degree (Four-Year)	07
H. ESL or English as Second Language Certificate	08
I. Vocational, Technical, or Trade Diploma, Certificate, or Degree (Specify) _____	09
J. Nursing Degree (LPN or RN)	10
K. Business Certificate or Degree	11
L. Secretarial Certificate or Degree	12
M. Other Types (Specify)	13
_____	
N. Medical Assistant, CAN, Dental Hygienist	14
O. Child care certificate / Teachers Aide	15
P. Graduate degree (MA, PhD, MD, JD, ThD)	16
Q. Child Development Associate (CDA) credential	17

19. What types of degrees, diplomas, or certificates has the child's other parent received?

	CIRCLE ALL THAT APPLY
A. None	01
B. Elementary, Middle, or Junior High School Diploma	02
C. ABE or Adult Basic Education certificate {PRE-GED)	03
D. GED Certificate	04
E. High School Diploma	05
F. AA or Associates Diploma or Degree (Two-Year)	06
G. BA or BS or College Diploma or Degree (Four-Year)	07
H. ESL or English as Second Language Certificate	08
I. Vocational, Technical, or Trade Diploma, Certificate, or Degree (Specify) _____	09
J. Nursing Degree (LPN or RN)	10
K. Business Certificate or Degree	11
L. Secretarial Certificate or Degree	12
M. Other Types (Specify)	13
_____	
N. Medical Assistant, CAN, Dental Hygienist	14
O. Child care certificate / Teachers Aide	15
P. Graduate degree (MA, PhD, MD, JD, ThD)	16
Q. Child Development Associate (CDA) credential	17

20. What is your current occupation?_____

21. What is the child's other parent's current occupation?_____

22. Currently. how many hours of paid employment do you work each week?_____

Is this the same number of hours as it was over the last year? If not, how has it changed? _____

23. Do you always work the same hours or do your hours change?

_____1. SAME _____2. CHANGE

24. Do you work:

_____ 1. Days _____2. Evenings _____3. Nights

_____4. Rotating Schedule _____5. Other

25. Is your work schedule flexible? _____1. YES _____2. NO

26. Are you working a job where you think you will still be working in 5 years?

_____1. YES _____2. MAYBE _____3. NO _____4. I DON'T KNOW

27. Are you getting work experience that will help you get the kind of job you want in the future?

_____1. YES _____2. MAYBE _____3. NO _____4. I DON'T KNOW

MacArthur Short Form
Vocabulary Checklist: Level II (Form B)

Children understand many more words than they say. For this part of the interview, we are particularly interested in the words your child says. For each word, please tell me if you have heard your child use it. If your child uses a different pronunciation of a word, say "yes" anyway.

	YES	NO		YES	NO
1. baa baa	01	00	26. beads	01	00
2. moo	01	00	27. hat	01	00
3. ouch	01	00	28. jeans	01	00
4. yum yum	01	00	29. shoe	01	00
5. quack quack	01	00	30. feet	01	00
6. bird	01	00	31. nose	01	00
7. duck	01	00	32. tongue	01	00
8. fish	01	00	33. bottle	01	00
9. kitty	01	00	34. bowl	01	00
10. moose	01	00	35. clock	01	00
11. penguin	01	00	36. glass	01	00
12. boat	01	00	37. jar	01	00
13. truck	01	00	38. keys	01	00
14. balloon	01	00	39. light	01	00
15. present	01	00	40. telescope	01	00
16. puzzle	01	00	41. bathtub	01	00
17. cheese	01	00	42. chair	01	00
18. chicken	01	00	43. crib	01	00
19. cookie	01	00	44. porch	01	00
20. juice	01	00	45. sofa	01	00
21. pretzel	01	00	46. cloud	01	00
22. salt	01	00	47. hose	01	00
23. sauce	01	00	48. sidewalk	01	00
24. vanilla	01	00	49. sun	01	00
25. cup	01	00	50. house	01	00

	YES	NO		YES	NO
51. store	01	00	76. big	01	00
52. zoo	01	00	77. black	01	00
53. baby	01	00	78. then	01	00
54. mommy	01	00	79. careful	01	00
55. child	01	00	80. dirty	01	00
56. mailman	01	00	81. fine	01	00
57. bath	01	00	82. mad	01	00
58. bye	01	00	83. noisy	01	00
59. lunch	01	00	84. slow	01	00
60. night night	01	00	85. before	01	00
61. no	01	00	86. today	01	00
62. bite	01	00	87. tomorrow	01	00
63. build	01	00	88. she	01	00
64. catch	01	00	89. their	01	00
65. drink	01	00	90. they	01	00
66. drop	01	00	91. yourself	01	00
67. find	01	00	92. why	01	00
68. go	01	00	93. above	01	00
69. hide	01	00	94. away	01	00
70. jump	01	00	95. up	01	00
71. kick	01	00	96. none	01	00
72. look	01	00	97. some	01	00
73. pick	01	00	98. does	01	00
74. run	01	00	99. don't	01	00
75. sit	01	00	100. were	01	00

TOTAL NUMBER_____

Has your child begun to combine words yet, such as "nother cookie" or "doggie bite?"

NOT YET	01- STOP ADMINISTRATION OF MacARTHUR
SOMETIMES	02 – CONTINUE
OFTEN	03 – CONTINUE

For each of the following pairs, please tell me the one that sounds most like the way your child talks right now. If your child is saying sentences even longer or more complicated than the two I say, just pick the second one.

CIRCLE ONE CODE FOR EACH PAIR

A.	Two shoe	01	M.	Doggie table	01
	Two shoes	02		Doggie on table	02
B.	Two foot	01	N.	That my truck	01
	Two feet	02		That's my truck	02
C.	Daddy car	01	O.	Baby crying	01
	Daddy's car	02		Baby is crying	02
(Talking about something happening right now)					
D.	Kitty sleep	01	P.	You fix it?	01
	Kitty sleeping	02		Can you fix it?	02
(Talking about something happening right now)					
E.	I make tower	01	Q.	Read me story, Mommy	01
	I making tower	02		Read me a story, Mommy	02
(Talking about something that already happened)					
F.	I fall down	01	R.	No wash dolly	01
	I fell down	02		Don't wash dolly	02
G.	More cookie!	01	S.	Want more juice	01
	More cookies!	02		Want juice in there	02
H.	These my tooth	01	T.	There a kitty	01
	These my teeth	02		There's a kitty	02
I.	Baby blanket	01	U.	Go bye-bye	01
	Baby's blanket	02		Wanna go bye-bye	02
(Talking about something that already happened)					
J.	Doggie kiss me	01	V.	Where mommy go?	01
	Doggie kissed me	02		Where did mommy go?	02
(Talking about something that already happened)					
K.	Daddy pick me up	01	W.	Coffee hot	01
	Daddy picked me up	02		That coffee hot	02
(Talking about something that already happened)					
L.	Kitty go away	01	X.	In no do it	01
	Kitty went away	02		I can't do it	02

Y.	I like read stories	01
	I like to read stories	02
Z.	Don't read book	01
	Don't want you read that book	02
AA.	Turn on light	01
	Turn on the light so I can see	02
BB.	I want that	01
	I want that one you got	02
CC.	Want cookies	01
	Want cookies and milk	02
DD.	Cookie mommy	01
	Cookie for mommy	02
EE.	Baby want eat	01
	Baby want to eat	02
FF.	Lookit me!	01
	Lookit me dancing!	02
GG.	Where's my dolly?	01
	Where's my dolly name Sam?	02
HH.	We made this	01
	Me and Paul made this	02
II.	I sing song	01
	I sing song for you	02
JJ.	Baby crying	01
	Baby crying cuz she's sad	02

TOTAL NUMBER _____

Parent Vocabulary

Thorndike, R.L., Hagen, E.P., & Sattler, J.M. (1986). The Stanford-Binet Intelligence Scale: Guide for Administering and Scoring (4th edition). Riverside Publishing: Chicago, IL. 49-64.

For each item, clearly state the word for the examinee and ask what the word means. Pass the item if the examinee gives the equivalent of a dictionary definition or a synonym. If the examinee gives an incorrect or insignificant definition, fail the item. If the examinee gives an ambiguous or partial answer, question further ("Tell me what you mean" or "'Explain what you mean") until either a correct or incorrect answer is given.

To participants: Now, I am going to ask you the meaning of some words. I will say the word and then ask you what the words means. The words begin easy and get more difficult as we go along. Most people do not know all the words, so if we come to a word you do not know, it is okay to say so.

1. **dollar**: n. 1. The basic monetary unit of many countries, equal to 100 cents. 2 Paper money, bill, or coin worth one dollar.

PASS _____ **FAIL** _____

2. **envelope**: n. 1. Flat paper container used to hold letters. 2. Something that wraps around as a cover. 3. A natural enclosing structure; membrane.

PASS _____ **FAIL** _____

3. **parrot**: n. 1. Any of a number of multicolored tropical birds, which have a short, curved, hooked bill, and in some cases, are able to mimic human speech and sounds. 2. A person who imitates something without comprehending it. -v. To mimic without meaning.

PASS _____ **FAIL** _____

4. **roar**: v. 1 To produce a full, loud, drawn-out sound in anger, frustration, or excitement. 2. To howl with laughter. -no 1 The loud, full sound of a person or animal in pain or rage. 2. A loud, deep sound, as that made by crashing waves.

PASS _____ **FAIL** _____

5. **soldier**: n. 1. A person who serves in the armed forces. 2. An enlistedman or woman, or a noncommissioned officer. 3. An aggressive leader, worker, or follower. To serve as a soldier. 2. To act like a soldier. 3. To pretend to be hard at work.

PASS _____ **FAIL** _____

6. **fake**: adj. Counterveit. –v. To pretend. –n. 1. A person or thing that is not genuine; a fraud 2. A useless copy passed off as real. 3. A quick change in direction designed to deceive one's opponent.

PASS _____ **FAIL** _____

7. **factory**: n. A building or plant in which goods are produced.

PASS _____ **FAIL** _____

8. **allow**: v. l. To permit, to grant. 2. To admit. 3. To authorize as a discount/exchange.

PASS _____ **FAIL** _____

9. **fade**: v.1. To lose color or volume slowly. 2. To lose the newness; wither. 3. To vanish. 4. To decrease in strength. –n. A slow change in an image or sound, as n a movie or television production.

PASS _____ **FAIL** _____

10. **lend**: v. 1. To temporarily permit the use of something provided that it or its equal will be returned. 2. To loan money, often with interest. 3. To contribute or add something. 4. To accommodate. 5. To give of oneself.

PASS _____ **FAIL** _____

11. **incapable**: adj. 1. Not able; powerless; 2. Incompetent. 3. Ineligible

PASS _____ **FAIL** _____

12. **promotion**: n. 1. An advancement in responsibility. 2. The act of encouraging the development of something, through some means of publicity. 3. The act of raising in position.

PASS _____ **FAIL** _____

13. **urge:** v. 1. To push for the approval of. 2. To prod. 3. To plead with repeatedly. 4. To inspire. –n. An unrelenting force.

PASS _____ **FAIL** _____

14. **mortal:** adj. 1. Subject to death. 2. Being the cause of death; fatal. 3. Intense; severe. 4. Very boring or drawn out. 5. Persistent. –n. A human being.

PASS _____ **FAIL** _____

15. **priceless**: adj. 1. Invaluable. 2. Valued for its rarity or worth. 3. Humorous.

PASS _____ **FAIL** _____

16. **falsehood**: n. 1. A lie. 2. The act of telling an untrue statement. 3. Something that is contrary to truth or fact.

PASS _____ **FAIL** _____

17. **prompt**: adj. 1. Ontime. 2. Done quickly. –v. 1. To urge. 2. To give help by reminding. –n. A cue.

PASS _____ **FAIL** _____

18. **incision**: n. 1. The act of cutting into a surface with a sharp implement. 2. A surgical cut made in tissue. 3. A cut made at the margin, as in a leaf. 4. Keen alertness.

PASS _____ **FAIL** _____

19. **rouse**: v. 1. To awaken from sleep or a state of inactivity. 2. To incite. 3. To provoke animals from their dens. –n. The act of causing someone to awaken. 2. A signal for moving to action.

PASS _____ **FAIL** _____

20. **divert**: v. 1. To change direction. 2. To sidetrack. 3. To entertain.

PASS _____ **FAIL** _____

21. **prophecy**: n. 1. A prediction of forecast. 2. The inspired words of a prophet seen as divine will. 3. A prophet's declaration given orally or in writing.

PASS _____ **FAIL** _____

22. **credible**: adj. 1. Believable. 2. Worthy of trust.

PASS _____ **FAIL** _____

23. **prologue**: n. 1. The introduction to a literary work. 2. A speech given to the audience at the beginning of a play. 3. The beginning of an event or act.

PASS _____ **FAIL** _____

24. **docile**: adj. 1. Able to be taught. 2. Capable of being molded or shaped. 3. Amenable to management.

PASS _____ **FAIL** _____

25. **incandescent**: adj. 1. Producing visible light when heated. 2. Shining; luminous. 3. Known for brilliance of expression.

PASS _____ **FAIL** _____

26. **philanthropy**: n. 1. The willingness to advance the well-being of society. 2. Assistance given to others through donations and charities. 3. Caring for humanity. 4. An organization set up to advance human welfare.

PASS _____ **FAIL** _____

27. **charlatan**: n. 1. Someone who misleads others by falsely claiming to have the knowledge of certain subjects or skills of an expert. 2. A fraud.

PASS _____ **FAIL** _____

28. **retroactive**: adj. Going into effect before the day of enactment.

PASS _____ **FAIL** _____

29. **repose**: n. 1. The state of resting. 2. The absence of activity; relaxation. 3. Freedom from worry. 4. Serenity. –v. 1. To lie at rest. 2. To trust someone.

PASS _____ **FAIL** _____

30. **tentative**: adj. 1. Not completely developed. 2. Not certain; unsure.

PASS _____ **FAIL** _____

31. **testator**: n. A person who prepares a valid will before death.

PASS _____ **FAIL** _____

32. **untoward**: adj. 1. Not favorable; not to one's advantage; unlucky. 2. Not easy to work with or control. 3. Not expected. 4. Improper.

PASS _____ **FAIL** _____

SCORE: (Add only unto 3 of 4 or 4 of 4 are failed) _____

These are all the questions that I have. Thank you for your time in answering these questions. Do you have any questions you would like me to answer?

Finish time: _____

Appendix C

Intercorrelations

Table C2

Intercorrelations of Parent Language Facilitation Techniques

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Directives	--													
2. Labeling	.68**	--												
3. Reading/conversation	.05	.27	--											
4. Yes/no questions	.29	.47*	.56	--										
5. Simple what questions	.67**	.70**	-.01	.57**	--									
6. Imitative directives	.25	.33	.60**	.26	-.03	--								
7. Praise	.40	.33	.01	.59*	.53*	.07	--							
8. Open-ended questions	.14	.16	.64**	.33	-.08	.51*	.15	--						
9. Repetition	.26	.54*	.20	.44	.60**	.04	.16	-.02	--					
10. Pointing request	.66**	.37	.08	.43	.62**	.15	.66**	.12	.12	--				
11. Expansion	-.02	.08	.01	.46*	.40	-.22	.08	-.14	.60**	-.22	--			
12. Criticism/correction	.38	.50*	.13	.50*	.45*	.14	.17	.17	.76**	.12	.49*	--		
13. Function/attribute questions	.48*	.61**	.10	.39	.69**	-.18	.38	-.06	.61**	.39	.32	.35	--	
14. Other response to child vocalization	.14	.57**	.51*	.68**	.45*	.17	.26	.15	.60**	.01	.61**	.50*	.52*	--

* Significant at .05 level
** Significant at .01 level

Table C1

Intercorrelations of Home Visitor Language Facilitation Techniques

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Directives	--													
2. Labeling	.81	--												
3. Reading/conversation	.20	.49	--											
4. Yes/no questions	.67**	.71**	.42	--										
5. Simple what questions	.17	.17	-.03	.41	--									
6. Imitative directives	.36	.61**	.57**	.35	.16	--								
7. Praise	.49*	.58**	.07	.56*	.37	.14	--							
8. Open-ended questions	-.09	.11	.11	-.02	-.04	.35	.20	--						
9. Repetition	-.04	-.02	.12	.32	.83**	.03	.35	.02	--					
10. Pointing request	.51*	.43	-.07	.45*	.52*	.21	.44	-.07	.20	--				
11. Expansion	-.17	.02	.18	.28	.17	.00	.42	-.01	.41	.06	--			
12. Criticism/correction	.43	.28	-.11	.47*	.51*	-.06	.39	-.21	.38	.69**	-.03	--		
13. Function/attribute questions	.57**	.46*	-.07	.36	.60**	.15	.54*	-.15	.39	.73**	.14	.64**	--	
14. Other response to child vocalization	-.37	-.15	.18	.18	.31	.03	.29	.30	.64**	-.16	.68**	.14	.07	--

* Significant at .05 level
** Significant at .01 level

Appendix D

Data Description

Table D1

Data Description

Variables	*n*	Min	Max	Mean	*SD*
CDI total score	17	10	1147	90.77	48.38
CDI words score	17	10	90	52.35	26.61
CDI phrases score	17	0	62	38.42	23.19
Income	17	$5,000	$40,000	$19,200	$10,463
Parent education	17	9	16	12.56	1.92
Parent vocabulary	17	16	42	32.29	7.28
Parent age	17	21	44	28.77	5.79
Family size	17	3	8	5	1.62
Home visitor Conversation facilitation	20	1	4.5	2.83	0.96
Parent Responsiveness across contexts	20	.00	.10	.04	.03
Parent Responsiveness book reading	14	.00	.37	.13	.11
Parent Responsiveness other activities	20	.00	.08	.03	.02
Home visitor Responsiveness	20	.00	.19	.05	.05
Parent General Conversation across contexts	20	.04	.23	.13	.06
Parent General Conversation book reading	14	.23	.50	.32	.08
Parent General Conversation other activities	20	.03	.22	.12	.06
Home visitor General Conversation	20	.07	.34	.17	.08
Parent SWQs time 1	18	.00	.24	.05	.06
Parent SWQs across contexts time 2	17	.00	.36	.17	.13
Parents SWQs book reading	14	.00	1.00	.43	.30

(Table continues)

Variables	*n*	Min	Max	Mean	*SD*
Parent SWQs other activities time 2	17	.00	.36	.12	.13
Home visitor SWQs time 1	18	.00	.23	.0	.08
Home visitor SWQs time 2	17	.00	.41	.13	.12